DEPARTMENT OF LABOR
CHILDREN'S BUREAU
JULIA C. LATHROP, Chief

INFANT MORTALITY

RESULTS OF A FIELD STUDY IN WATERBURY, CONN. BASED ON BIRTHS IN ONE YEAR

By

ESTELLE B. HUNTER

INFANT MORTALITY SERIES No. 7
Bureau Publication No. 29

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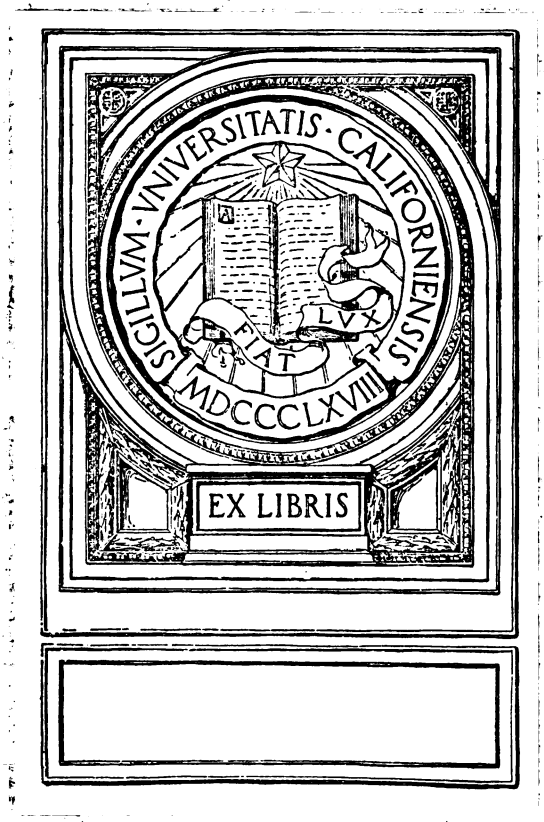
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U. S. DEPARTMENT OF LABOR,
CHILDREN'S BUREAU,
Washington, December 5, 1917.

SIR: Herewith I transmit a study of infant mortality in the city of Waterbury, Conn., being the fourth item in a series of studies of the same subject which the Children's Bureau is conducting.

Miss Estelle B. Hunter was director of the field work and has written the report. Special acknowledgment is made of the services of the special agents who secured the schedules in the field, Misses Eunice Crane, Marie Hourwich, Viola Paradise, Ethel Springer, Ruth True, and Helen Wilson. Miss Wilson made the special study of Waterbury housing. Miss Rena Rosenberg examined schedules in the field and assisted in the preparation of the report. Miss Emma Duke, head of the statistical division of the Children's Bureau, had general supervision of the preparation of the statistical material.

The Children's Bureau acknowledges with much appreciation the cooperation of municipal authorities, of volunteer associations, and of the press in Waterbury.

JULIA C. LATHROP, *Chief.*

HON. W. B. WILSON,
Secretary of Labor.

FOREWORD.

Although the period covered by this inquiry, June 1, 1913, to May 31, 1915, included the first nine months of the first year of the war, the conditions portrayed in this report are in the main prewar conditions. The extensive changes in industry which have been brought about in Waterbury by the war were just commencing to make themselves felt at the close of the inquiry.

The population of Waterbury, which in 1914 was estimated by the United States Bureau of the Census at 82,517, has been greatly increased during the past three years by the addition of large numbers of negroes from the South and foreign born of many nationalities from other communities who have been attracted by the high wages paid in the munition factories. But coexistent with high wages these newcomers have found an even higher cost of living. Furthermore, the city was unprepared for this sudden increase in population, and even ability to pay for comfortable surroundings has not insured ability to secure them.

The problem of housing these newcomers is beginning to receive attention, but accommodations for housing the rapidly increasing population of the city are still inadequate. In February, 1916, a group of Waterbury citizens petitioned the mayor to appoint a housing committee to investigate and report upon conditions. As a result the mayor appointed a committee of six leading citizens, who secured the services of an expert in city planning. Under his direction the city was surveyed and a report with recommendations was presented to the public through the newspapers.

Acting upon the information in this report two large manufacturing plants have been erecting a number of houses of desirable types, but many of these will not be available before 1918. Although a step in the right direction, they can not begin to meet the immediate demand for housing accommodations.

It is obviously impracticable to attempt to enforce laws pertaining to overcrowding when eviction from one center of congestion would merely increase congestion in another center. Certain conditions, however, could be corrected, such as disrepair of buildings, inadequate or faulty plumbing and toilet facilities, infrequent and irregular collection of garbage, insufficient or impure milk and food supply. These must be adequately supervised and controlled by the city if the health of the community is to be maintained. It should be

recognized that the intensive room congestion as it exists in Waterbury to-day greatly increases the susceptibility of the population to disease. Such health measures as can be taken should therefore be most vigorously enforced. The health department should be responsible for all of this work. But Waterbury, which in 1914 appropriated but 17.7 cents per capita population for its health work, about one-third the recognized minimum, appropriated even less per capita in 1917. It still expects its health department to do efficient work with the staff and equipment which were inadequate in 1914, namely, a part-time health officer, one milk and food inspector, one tenement-house inspector, and one supervisor of garbage collection.

Employment of married women has greatly increased in Waterbury since the beginning of the war, one large munition plant alone employing several thousand women, nearly one-half of whom are married. The employment of mothers brings with it problems of infant and child care, in a proper solution of which the city, as well as the mother, is vitally interested. However, a large measure of the responsibility for the welfare of the children of working mothers rests upon the State or municipality which permits the mother to pursue gainful occupations outside the home. As a basis for intelligent action information on the following points should be secured: (1) What care does the child of the working mother receive? (2) If the child is cared for in a day nursery, what supervision does the nursery receive and by whom is it given? (3) If the child is cared for at home, is some older child required to care for the baby when he should be in school? (4) If the mother works at night, is she able to give the child the proper care during the day?

The results of such an inquiry undoubtedly would lead the community to consider whether it would not prove better, and in the end cheaper, to make provision that would enable the mother to remain at home with her children. Twenty-five States have passed mothers' pension laws providing pensions which permit the mother to remain at home with her children, free from financial worry, until the children themselves reach an age when they can become wage earners.

One private organization is attempting to reduce infant mortality in Waterbury by maintaining an infant-welfare station in that section of the city where infant mortality from preventable causes was highest at the time of the investigation. But the 1916 report for this organization indicates that of the Lithuanians, who, more than any other group, appear to need wise direction in the care of their infants, few have availed themselves of its services.

In brief, many of the conditions set forth in this report as existing in 1915 have grown steadily worse. Furthermore, other factors, such as the addition of new racial elements to the population and

the increased employment of mothers, have contributed to the causes of ill health and high mortality for both adults and children. Such a situation, deplorable at any time, is particularly disastrous when a country is engaged in war. England, Germany, and France are attempting to retrieve the mistakes made at the beginning of the war through their failure to realize that an adequate preparedness program includes increasing and strengthening all public-health measures. Under existing circumstances Waterbury's population, even with greatly increased wages, can not purchase healthful living conditions; until they can be purchased, the city can not expect to conserve the health of the community nor to lower materially its infant mortality rate.

INFANT MORTALITY, WATERBURY, CONN.

INTRODUCTION.

The inquiries of the Federal Children's Bureau into the causes of infant mortality mark the beginning of an attempt on the part of the United States Government to obtain an accurate measure of the relative importance of various factors in the great waste of infant life in this country. Obviously this attempt must rest upon an accurate knowledge of the number and location of births. Owing to the incomplete registration of births and deaths in many sections of the country it is impossible at the present time to compute an exact infant mortality rate for the United States as a whole. We are still guessing at our birth and death rates in spite of the fact that we have long known that uniform methods of keeping our vital statistics are essential to intelligent government.

INFANT MORTALITY RATE.

Infant mortality is a technical term referring to deaths of infants under 1 year of age. An infant mortality rate is the number of such deaths per thousand live births.[1] The usual method of computing an infant mortality rate for a certain area is to divide the number of deaths of infants under 1 year of age occurring in a given calendar year by the number of live births in the same year. Obviously the number of deaths thus secured includes not only deaths of infants born in the same calendar year, but also deaths of some infants born in the preceding year and of some born in a different area. In other words, the two numbers do not refer strictly to the same group of infants. To avoid this inaccuracy the infant mortality rate in this study is based on the number of babies born alive in a certain area within a given 12 months and the number of deaths under 1 year in this same group, thus excluding the deaths of any infants not born in the specified area and period.

That birth registration in the United States is not only universally imperfect, but that it is much more imperfect than death registration, is generally recognized. Hence rates computed by the usual method involve what Phelps has called the great American infant mortality

[1] In some countries the infant mortality rate has been computed on the basis of all births, including stillbirths; but this practice is not general in the United States, nor has it been followed in any work of the Children's Bureau.

fallacy, which arises from dividing the practically complete number of deaths by the incomplete number of births, thereby obtaining too high a death rate.

In 1911 the United States Bureau of the Census [1] estimated that in 23 States and the District of Columbia, containing more than one-half of the population of the United States, at least 90 per cent of the total deaths were registered. Within this part of the death-registration area the infant mortality rate was computed as 124 per thousand live births.[2] A later report of the Census Bureau shows for 1915 a rate of 100 in the birth-registration area, a much smaller section of the country, consisting of the New England States, New York, Pennsylvania, Michigan, Minnesota, and the District of Columbia and containing about one-third of the population. In these States the rate varies from 70 to 120, as shown below, while the rates for cities of 25,000 population or over in 1910 in the same area range from 54 in Brookline and Malden, Mass., to 196 in Shenandoah, Pa.

State.	Infant mortality rate in calendar year 1915.[a]	State.	Infant mortality rate in calendar year 1915.[a]
Connecticut	107	New Hampshire	110
Maine	105	New York	99
Massachusetts	101	Pennsylvania	110
Michigan	86	Rhode Island	120
Minnesota	70	Vermont	85

[a] U. S. Bureau of the Census, Birth Statistics, 1915, p. 10.

Although the rate, 100, for the birth registration area of the United States compares favorably with that for Hungary, which was 212 in 1909 and 194 in 1910, it appears unnecessarily high when we consider that New Zealand kept its rate for the entire country down to 62 and 68 for the same years and has since further reduced it to 51.

Reduction of infant mortality in the United States has not kept pace with scientific research, which is constantly adding to the list of preventable diseases. The immediate task of every community should be to prevent infant deaths from such diseases. Medical authorities claim that application of the knowledge at present available would save at least one-half of the infant lives now needlessly sacrificed.

OBJECT AND GENERAL PLAN OF INFANT MORTALITY INVESTIGATIONS.

The main object of this inquiry was to determine not alone the relative frequency of deaths among infants under 1 year of age under different economic, social, and civic conditions, but also the

[1] U. S. Bureau of the Census, Mortality Statistics, 1911, p. 10.
[2] Ibid., p. 25.
[3] Statistics of the Dominion of New Zealand, 1909, 1910, and 1915.

importance of the various economic, social, and civic factors in determining an infant mortality rate.

With its limited force and funds the Children's Bureau could not extend its inquiries throughout the entire United States. It therefore decided to make intensive studies in each of a number of typical areas throughout the country, the results eventually to be combined and related. The choice of the first areas was necessarily restricted to places of such size as could be covered thoroughly within a reasonable time by the few agents available for the work; and in order to obtain a complete record of the births and deaths in a selected community without the necessity of making a house-to-house canvass, communities within the birth-registration area with populations of 50,000 to 100,000 in 1910 were selected.

All the cities chosen were manufacturing centers, each with a large foreign element. The initial study was made in Johnstown, Pa., a steel-manufacturing city, where none of the large factories employed women. This was followed by studies in Manchester, N. H., a cotton-manufacturing town with a high percentage of women at work outside their homes; Brockton, Mass., a shoe-manufacturing center with a high wage level; Saginaw, Mich., a town of varied industries; and New Bedford, Mass., a seaboard textile town. A similar study was made by the city of Montclair, N. J., using schedules furnished by the Children's Bureau, which later tabulated and published the results.

SELECTION OF WATERBURY.

Waterbury, Conn., was the seventh city selected as a unit in this national study of the causes of infant mortality. Factors which determined this choice were its location within the birth-registration area, a large foreign group constituting over one-third of the city's entire population, and a population of sufficient size[1] to offer a base large enough to permit accurate deductions from the tabulation of facts secured from the investigation. Moreover, in contrast to some of the other places selected, it had but a small proportion of married women engaged in work outside their homes, and its chief industry, brass manufacturing, had not been represented in the cities previously studied.

The infant mortality rate in Waterbury since 1910 has fluctuated between 134 in 1911 and 174.1 in 1913, with an average of 146.5 for the five-year period.

[1] U. S. Bureau of the Census Bulletin 133, estimated population 1914, 82,517.

TABLE I.—*Live births, infant deaths, and infant mortality rates for five years, 1910–1914.*[a]

Year.	Live births.	Infant deaths.	Infant mortality rate.
1910	2,150	320	148.8
1911	2,164	290	134.0
1912	2,210	303	137.1
1913	2,171	278	174.1
1914	2,241	311	138.8

[a] Connecticut Vital Statistics, 1910, 1911, 1912, 1913, 1914.

The latest census figures show it to have been 143 in the calendar year 1915,[1] while that for the entire birth-registration area of the United States for the same year was 100. Waterbury's rate was not only higher than the average for the entire birth-registration area in that year, but was higher than the rate in any other town or city in Connecticut and higher than the rate in all but 26 of the 250 cities reported in the birth-registration area.

HISTORY.

Waterbury was settled in 1677. Sometime later a committee of the colonial government estimated that the territory including what is now Waterbury, Watertown, Plymouth, parts of Middlebury, Oxford, and Prospect "might comfortably support 30 families," an estimate obviously based on the assumption that in spite of the hilly and rocky character of the district it was to be an agricultural community. In 1910 Waterbury alone had within its boundaries 14,556 families.[2] It was organized as a borough in 1825 and chartered as a city in 1853. In 1910 it was the fourth largest city in Connecticut, having, according to the Federal census of that year, a total population of 73,141. Of this number 24.9 per cent were native white of native parents, 39.1 per cent native white of foreign or mixed parents, 34.9 per cent foreign-born white, and only 1.1 per cent colored.

Waterbury is the largest brass and copper manufacturing city in the United States. In 1909 it ranked third in the State in the total value of manufactured products. Since becoming a manufacturing center and especially since 1850 the growth of Waterbury has been remarkable, the population increasing from 5,137 in 1850 to 73,141 in 1910.

This increase in population was due in great part to the large influx of immigrants drawn by the demand for workers in the factories. The order of their coming corresponds closely to the order in which the various nationalities have been added to the United

[1] U. S. Bureau of the Census, Birth Statistics, 1915, p. 10.
[2] U. S. Census 1910, Population, Vol. II, p. 257.

States as a whole—the English and Irish, followed by the German and French, and later by the Italian, Austro-Hungarian, and Russian. In 1910 there were 25,498 foreign-born white in Waterbury, representing at least 23 countries; the most important groups, numerically, are shown in the following statement, which for purposes of comparison includes the figures for 1900:

Country of birth.	1910 [a]	1900 [b]	Country of birth.	1910 [a]	1900 [b]
Austria	422	113	Ireland	5,838	5,866
Canada, French	1,901	1,777	Italy	6,567	2,007
Canada, other	401	489	Russia	5,600	1,265
England	1,175	938	Scotland	525	386
France	228	149	Sweden	624	397
Germany	1,433	1,195	Other foreign countries	784	782

[a] U. S. Census 1910, Population, Vol. II, p. 256.
[b] U. S. Census 1900, Population, Vol. I, Part 1, pp. 800-803.

The greatest recent immigrant growth has been in the Italian and Russian groups. The Italians first appeared in Waterbury about 1870; in 1900 they numbered 2,007 and increased to 6,567 in the next 10 years. They now form the largest foreign group in the city, outnumbering even the Irish, who in 1900 equaled more than twice the population of any other foreign group. The latter have remained practically stationary in number since 1900 and are now the second foreign group in size. The third most important foreign group is the Russian, which includes Lithuanians, Russian Poles, and Russian Jews, by far the greatest number being Lithuanians, the first of whom came to Waterbury in 1890.

The city is divided into five wards, each of which radiates from the center and includes business, residential, and rural sections. The Naugatuck River runs south through the city a little to the west of the center, separating practically all of ward 3 and half of ward 4 from the other wards. The flat land, which forms the Naugatuck Valley, was the natural selection for the location of the homes of the workers in the manufacturing plants located along the stream. An increasing number of shops and factories and their attendant industries necessitated the growth of the business section of the city, thereby decreasing the amount and increasing the value of valley land available for home sites. In time this pressure of land values began to force the population up the surrounding hills where the problem of congestion is as yet unknown, although inadequate water supply, sewage disposal, and transportation are serious obstacles to proper living.

METHOD OF INQUIRY.

In accordance with the plan determined upon by the Children's Bureau for all infant mortality inquiries, the primary basis of selection was to be registered births, but the fact that there were comparatively few infants of Lithuanian mothers registered made it seem advisable to make a house-to-house canvass as a check on the completeness of birth registration in Waterbury. This canvass, supplemented by comparison with baptismal records, death certificates, and records of social agencies, disclosed 329 [1] unrecorded live births, representing 12.8 per cent of all live births in the city for the 12 months under consideration. Of these unrecorded live births, 222 were of children of foreign-born mothers, 171, over one-half, occurring to Lithuanian mothers. Although constituting but 18.1 per cent of all births to foreign-born mothers, and 12.2 per cent of the births to all mothers considered in the detailed study, the Lithuanians had the highest infant mortality rate of any nationality.[2]

Waterbury was officially unaware of the existence of at least 12.8 per cent of its accessions by birth, unless death and need for a burial permit secured registration of the fact that these infants had been for a time part of a community which cared too little for their welfare even to register their arrival. Fifty-two, or 15.8 per cent, of the 329 live-born babies whose births were unregistered were recorded only in the death records of Waterbury. Thirty of these 52 deaths were of Lithuanian babies, the group having the highest infant mortality rate from all causes, and more important still, the largest proportion from preventable causes. The per cent distribution of unregistered live births according to nationality of mother is shown in Chart I.

Of the 329 cases not registered, failure to report was attributable in 11 or 3.3 per cent to hospitals, in 38 or 11.6 per cent to private physicians, and in 156 or 47.4 per cent to midwives. In the remaining 124, representing 37.7 per cent of the unregistered births, either there was no recognized attendant or information regarding the attendant was not secured. Often the unlicensed midwives had physicians sign as the attendant at birth, and of the births found to be attended by midwives who had no supervision of any kind a large proportion were not registered at all. Some midwives were regularly failing to report their cases, only a very small number of births attended by them being recorded.

The initial fault lies in the failure to enforce the State law of Connecticut for the registration of births and deaths. The law [3] pro-

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[1] General Table 1.

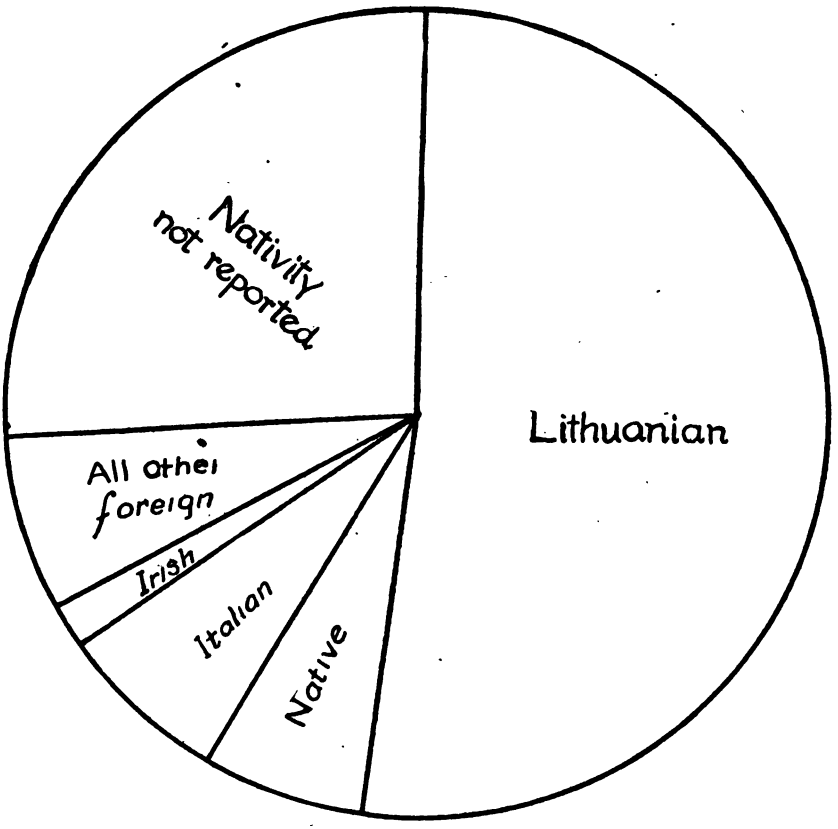
[2] General Table 2.

[3] A Manual of Statutes of Connecticut relating to the Public Health and Safety, 1902, secs. 1861, 1870, 4714, 4715, and 4719.

vides (1) that all persons acting as paid attendants at the birth of a child must be regularly licensed practitioners; (2) that the fact of the birth must be reported in writing to the local registrar not later than the first week of the month succeeding the birth; and (3) appropriate penalties for failure to observe the above provisions of the law.

The law is weak in that it permits a perilously long period to elapse between the date of birth and the date of registration, and it makes

CHART I.—PER CENT DISTRIBUTION OF UNREGISTERED LIVE BIRTHS, ACCORDING TO NATIONALITY OF MOTHER.



scant provision for enforcement. That the law has not proved effective, in at least some sections of the State, is shown by the fact that in 1912 the county health officer of New Haven County in his report to the State board of health stated:[1]

Investigations made in the city of Waterbury during the past summer showed that more than 50 per cent of the births occurring among the families of some of the foreign population were never returned to the registrars of vital statistics. This must be overcome in some way, as it destroys the accuracy of all of the vital statistics of the State.

[1] Report of State Board of Health, 1911-12, p. 84.

As shown by the Children's Bureau canvass, the registration is still incomplete. If it is to be made satisfactory, prompt registration of births should be one of the recognized duties of physicians, midwives, or other persons called upon to fill the position of attendant at birth. Immediate and persistent prosecution for failure to report the births would prove a most effective method of improving birth registration and would serve also to eliminate from practice those who at present are practicing without licenses.

The preliminary work of the Waterbury investigation was begun in April,1914. This consisted of copying the names, addresses, and other information contained in the birth certificates on file at the city hall for all babies born during the period commencing June 1, 1913, and ending May 31, 1914. These 12 months were selected because they constituted the most recent 12-month period which would permit all the babies to have lived at least one year before being visited. In addition to transcribing the city records to the uniform schedules upon which the facts gathered in the course of the inquiry were to be entered, a schedule was filled out for every unregistered baby for whom was found a baptismal record or a record with some social agency or institution.

Information from the death certificates on file was copied on the schedules already made out from the birth certificates for all babies whose birthplace was given as Waterbury, Conn.; for 52 no birth certificates were found. Schedules were therefore filled out from the death certificates as they had been from baptismal records and the records of social agencies. These schedules were assigned to the agents, who called not only at the addresses secured as indicated but at every house in the city to make inquiries concerning all births and infant deaths which had occurred during the selected period.

The information called for by the schedule was secured through personal interviews of individual mothers by the woman agents. The study was absolutely democratic; the mother of every baby born in the year selected, whether rich or poor, native or foreign born, was sought. As the text shows, certain facts regarding the civic surroundings of the families were secured in addition to the data from interviews, but the chief value of the inquiry lies in the information afforded by the mothers.

While the preliminary clerical work was in progress the people of Waterbury were being made familiar with the purpose and plan of the investigation. The unfailing cooperation so generously given throughout the inquiry by the entire city of Waterbury, through its public officials, institutions, private organizations, press, clergy, and various other representatives, is responsible in large measure for the success of the inquiry.

In every section of the city the agents of the Federal Children's Bureau found evidences of the intelligent manner in which Waterbury had prepared the mothers for the visits of the Government agents. As the Children's Bureau has no power to compel answers, all information secured must be given willingly. It is therefore a great tribute to the constructive interest of Waterbury mothers that of the 2,197 mothers visited not one refused the information upon which the report is based.

ANALYSIS OF MATERIAL.

MATERIAL CONSIDERED.

This investigation considers all live-born and all stillborn infants of 7 or more months' gestation, registered and unregistered, born in the city during the 12 months selected (June 1, 1913, to May 31, 1914) whose families lived in the city with the baby for at least 9 months of the baby's first year and for whom accurate records could be obtained.[1]

WARD DISTRIBUTION.

The distribution of the 2,144 live-born infants and the deaths of 263 of the group who died before reaching 1 year of age is shown on the map facing this page. A large number of infant deaths in a certain section does not necessarily indicate a high infant mortality rate for that section. Therefore the insert map showing the rates by wards must be considered in connection with the spot map in order not to give undue weight to numerous infant deaths in densely populated areas.

To consider the infant mortality rate for the city as a whole obscures the fact that the rates for certain sections within the city may be much higher or much lower than the rate for the entire city. It might be expected that in a city like Waterbury, where the wards radiate from the center of the city, ward rates would be similar on account of the inclusion of a sample of every variety of neighborhood within the boundaries of each ward, from the congested section near the heart of the city to the rural areas at the edge. But rates varying from 150.1 in the fourth ward to 70.6 in the second ward are shown in Table II which presents the distribution of births and infant deaths together with the infant mortality rate for each of the wards.

[1] Four hundred and fifty-seven births were excluded from the detailed study for the following reasons: Two hundred and sixty-three mothers moved from Waterbury before the end of the baby's first year or spent the greater part of the year outside of the city; 49 mothers (termed "nonresidents") came to Waterbury to avail themselves of its hospital service and returned to their homes outside the city shortly after confinement; in 3 cases the information regarding the baby was given by some person other than the mother and there seemed reason to doubt its authenticity; 12 schedules for infants of unmarried mothers were excluded on the ground that there was no family group; 12 schedules for miscarriages were excluded, as the study is confined to live births and stillbirths that have resulted from at least 7 months' gestation, and 118 could not be located. These 118 births constituted only 4.4 per cent of the 2,654 names secured, although in many instances the visits to the homes were not made until 2 years after the birth of the child concerning whom the information was sought.

TABLE II.[a]—*Live births during selected year, infant deaths, and infant mortality rate, by ward of residence.*

Ward of residence.	Total live births.	Infant deaths.	Infant mortality rate.
The city	2,144	263	122.7
Ward:			
1	451	63	139.7
2	326	23	70.6
3	482	51	105.8
4	573	86	150.1
5	312	40	128.2

[a] General Table 3.

A partial explanation of the varying rates is indicated by Chart II, which brings out the fact that in all wards but the second the births to foreign-born mothers greatly outnumbered those to the native mothers. Of the foreign-born mothers the bulk of the Italians were found in wards 4, 3, and 1, given in order of importance; the Lithuanians in wards 3 and 4, and the Irish in wards 5 and 4.

TABLE III.—*Births during selected year in each ward of residence according to nationality of mother.*

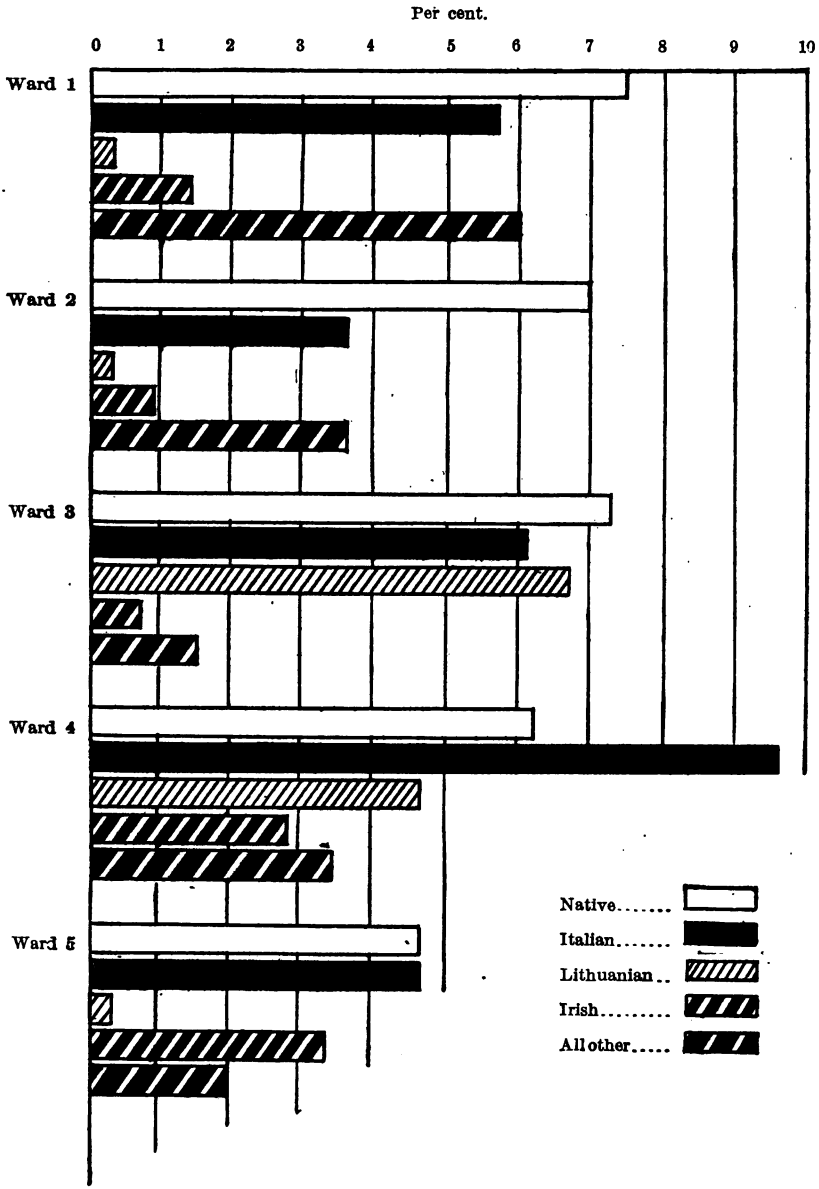
Nationality of mother.	All wards.		Ward of residence.									
			1		2		3		4		5	
	Live births.	Stillbirths.	Live births.	Stillbirths.	Live births.	Stillbirths.	Live births.	Stillbirths.	Live births.	Stillbirths.	Live births.	Stillbirths.
All mothers	2,144	53	451	9	326	10	482	11	573	12	312	11
Native mothers	705	13	163	2	147	7	160	1	136	1	99	2
Foreign-born mothers	1,439	40	288	7	179	3	322	10	437	11	213	9
Italian	628	23	121	5	77	2	129	6	203	8	98	2
Lithuanian	260	7	6	.....	5	1	145	3	98	3	6	.....
Irish	195	5	31	.....	19	.....	15	.....	62	.....	68	5
Slavic[a]	89	2	36	1	20	.....	2	.....	20	.....	11	1
Jewish	60	1	39	1	15	.....	4	.....	1	.....	1	.....
German	57	1	18	.....	17	.....	10	1	10	.....	2	.....
French Canadian	56	.....	7	.....	6	.....	2	.....	28	.....	13	.....
English, Scotch, and Welsh[b]	40	.....	11	.....	9	.....	5	.....	8	.....	7	.....
All other[c]	54	1	19	.....	11	.....	10	.....	7	.....	7	1

[a] Including 65 Polish, 20 Russian, 2 Slovak, 2 Bohemian, 1 Serbo-Croatian, and 1 Ruthenian.
[b] Including 18 English, 21 Scotch, and 1 Welsh.
[c] Including 29 Scandinavian, 7 English Canadian, 6 French, 5 Magyar, 3 Syrian, 2 Greek, 1 Dutch, 1 Spanish, and 1 West Indian Black.

Throughout this report, with the exception of the special housing section, the nationality of the mother rather than that of the father has been shown, because it is believed that in those cases in which the parents are of different nationalities the customs and traditions of the mother determine the character of the care given the infant. This procedure affects only 12.9 per cent of the total 2,197 cases, as for 1,911, or 87 per cent, the nationality of the parents was the same.[1]

[1] General Table 4.

CHART II.—PER CENT DISTRIBUTION OF BIRTHS, ACCORDING TO WARD OF RESIDENCE AND NATIONALITY OF MOTHER.



MEDICAL CAUSE OF DEATH.

The medical cause of death is the immediate cause only. Correctly speaking, it is not only a cause but also a result—the result of improper economic and social conditions. The discussion of any one of the group of diseases shown in Chart III necessitates the consideration of factors responsible for the creation of the disease. Congenital debility suggests improper care or illness of the mother during the period of gestation; diseases of nutrition and gastric and intestinal diseases point to improper care of the infant, particularly in the matter of feeding, although hot weather or infection and a defective digestive tract may also be responsible. These causes in turn may be affected by such factors as insufficient income, improper housing conditions, employment of the mother, or ignorance or indifference on the part of the caretaker of the infant. In considering the tables presented in this report the reader must constantly bear in mind that, though the infant mortality rate may be shown to vary with variations in some one factor, the inference that the factor is a direct or sole cause is not always warranted; the nature of the facts and the interrelation of the various factors considered may prohibit the inference of too close a relationship.

All causes.[1]—The most important causes of infant deaths in Waterbury are the group of gastric and intestinal diseases, which caused over one-third of all infant deaths. Second in importance are the deaths from premature birth, congenital debility, injuries at birth, etc., included under the group heading "Early infancy." Almost one-third of the deaths were due to this cause. Third in order are respiratory diseases, causing 14.8 per cent of all infant deaths.

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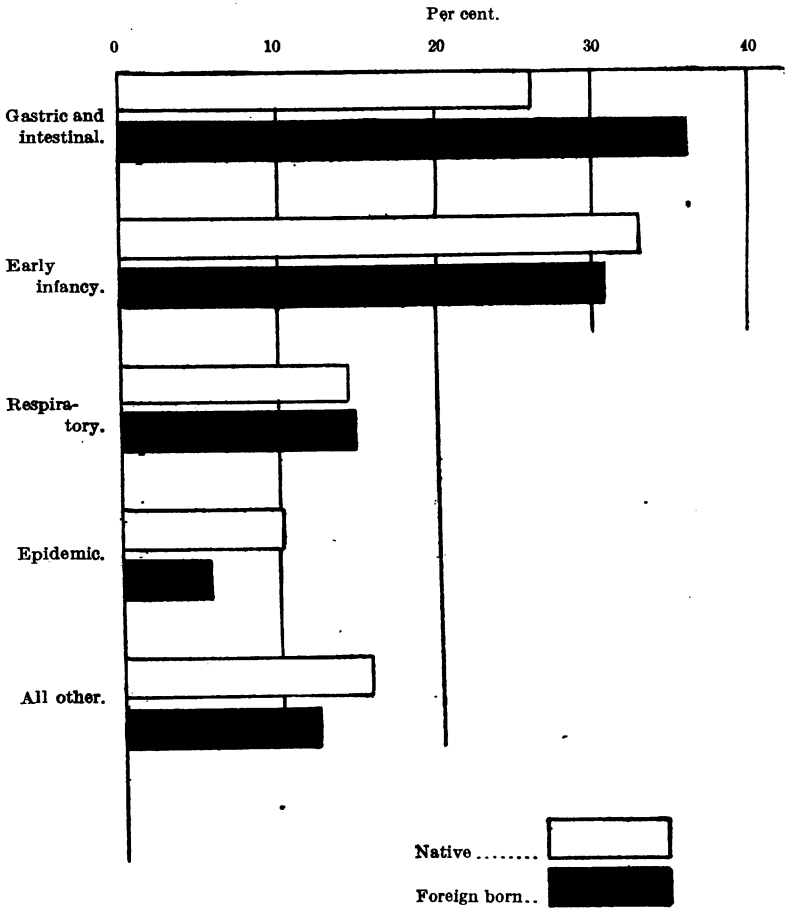
[1] Principal causes of death for infants under 1 year according to classification by United States Bureau of the Census for deaths during this period. (Mortality Statistics, 1914, p. 660.) The term "gastric and intestinal diseases," as used in the tables and discussion, includes only the diseases of this type which are most important among infants, i. e., diseases of the stomach, diarrhea, and enteritis. It does not include all "diseases of the digestive system" as classified under this heading according to the detailed International List of Causes of Death. Respiratory diseases, similarly, includes only those of the respiratory diseases which are most important among infants, i. e., acute bronchitis, broncho-pneumonia, and pneumonia. It does not include all "diseases of the respiratory system" as classified under this heading according to the detailed International List. Epidemic diseases includes only those of this group which are most important among infants.

CHART III.—PER CENT OF INFANT DEATHS DUE TO SPECIFIED CAUSES, ACCORDING TO NATIVITY OF MOTHER.



The proportion of deaths from each group of causes in Waterbury during the selected year as compared with that in the registration area in 1914 is shown in Table IV. Waterbury's per cent distribution of deaths was lower than that for the registration area in every group of diseases except that from gastric and intestinal diseases, for which group it had a percentage 9.2 higher than that for the registration area.

TABLE IV.[a]—*Per cent distribution of deaths among infants born in Waterbury during selected year and of infant deaths in the registration area in 1914, by cause of death.*

Cause of death.	Waterbury.	Registration area.
All causes	100.0	100.0
Gastric and intestinal diseases	33.5	24.3
Respiratory diseases	14.8	15.5
Malformations	3.8	6.2
Early infancy	31.6	33.9
Epidemic diseases	6.8	8.2
External causes	.4	1.2
Diseases ill defined or unknown	1.5	1.9
All other causes	7.6	8.7

[a] General Table 5.

Gastric and intestinal diseases.—Gastric and intestinal diseases, the group causing the greatest number of infant deaths in Waterbury, are largely preventable, yet they were responsible for 88 or one-third of all infant deaths in Waterbury, a proportion greatly in excess of that for the registration area. Diseases of the intestinal tract can in most cases be traced to some combination of summer heat, unhygienic surroundings, and improper care such as unsuitable feeding or neglect. These in turn may be conditions fostered by ignorance and poverty. It follows that a program for the prevention of gastric and intestinal diseases must include provision of adequate incomes for proper family life and education of the mother which will insure intelligent care for the infant.

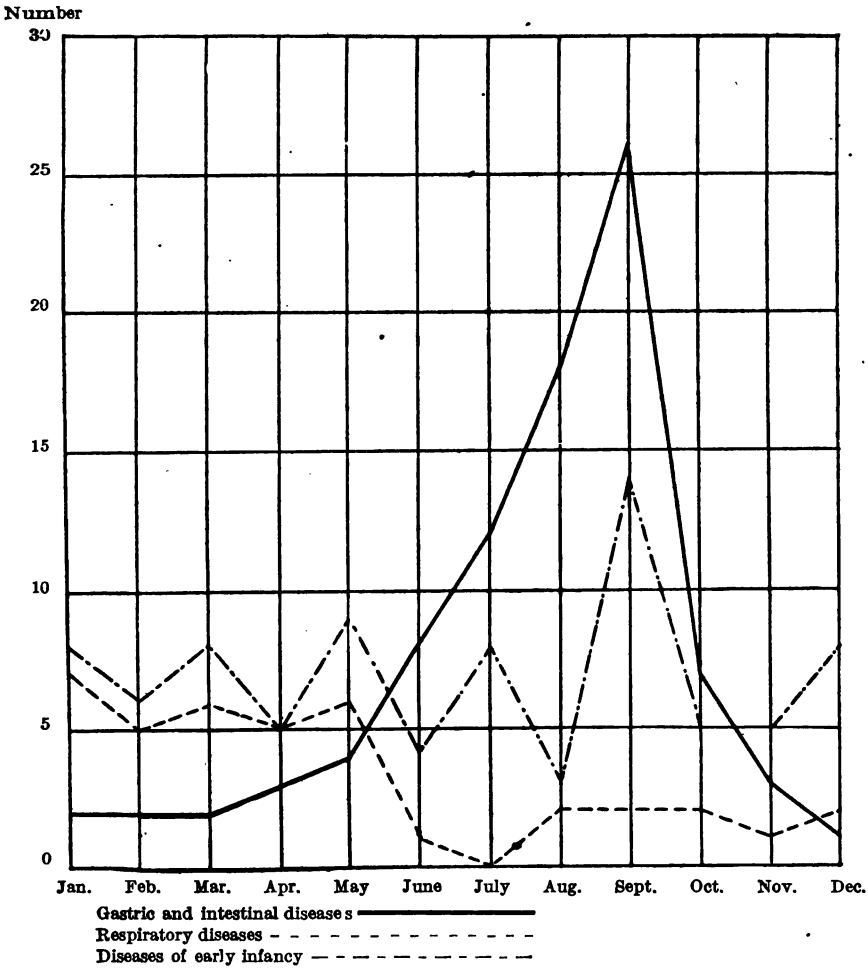
Although births to Lithuanian mothers constituted only 12.2 per cent of all births, the infants of this group contributed 20.5 per cent of all infant deaths and 30.7 per cent of infant deaths from gastric and intestinal diseases. More significant still, one-half of all the Lithuanian infant deaths resulted from these diseases.

TABLE V.—*Total deaths among infants born in selected year and number and per cent of deaths from gastric and intestinal diseases, according to nationality of mother.*

Nationality of mother.	Infant deaths.	Deaths from gastric and intestinal diseases.	
		Number.	Per cent.
All mothers	263	88	33.5
Native mothers	69	18	26.1
Foreign-born mothers	194	70	36.1
Italian	69	21	30.4
Lithuanian	54	27	50.0
Irish	36	12	33.3
All other	35	10	28.6

Heat.—The most striking fact about deaths from gastric and intestinal diseases is the marked increase in number during the summer months. The small number of deaths from this cause during the winter months, the rapid increase throughout the summer, culminating in September, and the sudden drop in October, are shown in Chart IV.

CHART IV.—DEATHS FROM SPECIFIED CAUSES BY CALENDAR MONTH OF DEATH.



The sudden increase in September is no doubt due in part to the cumulative effect of the summer heat, which in 1913 was sustained for a long period, as shown in the following tabular statement. The effects of heat are increased by poor ventilation and improper surroundings within the home, making the infant an easy prey to all diseases which affect the intestinal tract.

Temperature and precipitation for Waterbury, Conn., during the period of the investigation.

[Furnished by the Weather Bureau, U. S. Department of Agriculture.]

	Temperature.			Precipitation.		Temperature.			Precipitation.
	Mean.	Maximum.	Minimum.			Mean.	Maximum.	Minimum.	
1913.	°F.	°F.	°F.	Inches.	1914.	°F.	°F.	°F.	Inches.
June	67	92	38	3.31	January	28	55	−10	3.87
July	73	97	45	1.36	February	22	53	−11	3.10
August	71	96	44	2.93	March	35	72	12	6.09
September	62	88	33	3.37	April	46	83	21	3.87
October	57	80	30	8.83	May	61	94	31	2.81
November	44	70	24	2.92					
December	35	57	11	2.84					

Improper feeding.—An important cause of gastric and intestinal diseases is improper feeding. A comparison by nationality of the percentage of artificially-fed infants at the end of the first 3 months, 6 months, and 9 months of life with the per cent of infant deaths from gastric and intestinal diseases for the same nationalities, shows that among infants of foreign-born mothers the percentage of deaths increases with the proportion of infants artificially fed.

Poverty.—That the native mothers constitute the only group with the coincidence of a high percentage of artificial feeding and a low percentage of infant deaths from gastric and intestinal diseases is shown graphically in Charts Va and Vb.

CHART Va.—PER CENT OF ARTIFICIALLY-FED INFANTS SURVIVING AT AGE SPECIFIED, ACCORDING TO NATIONALITY OF MOTHER.

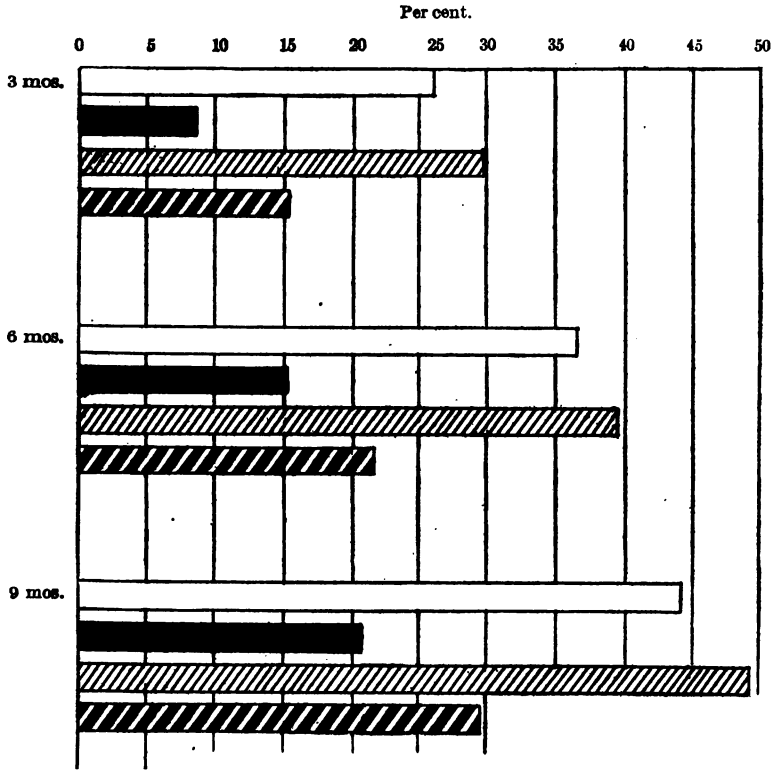
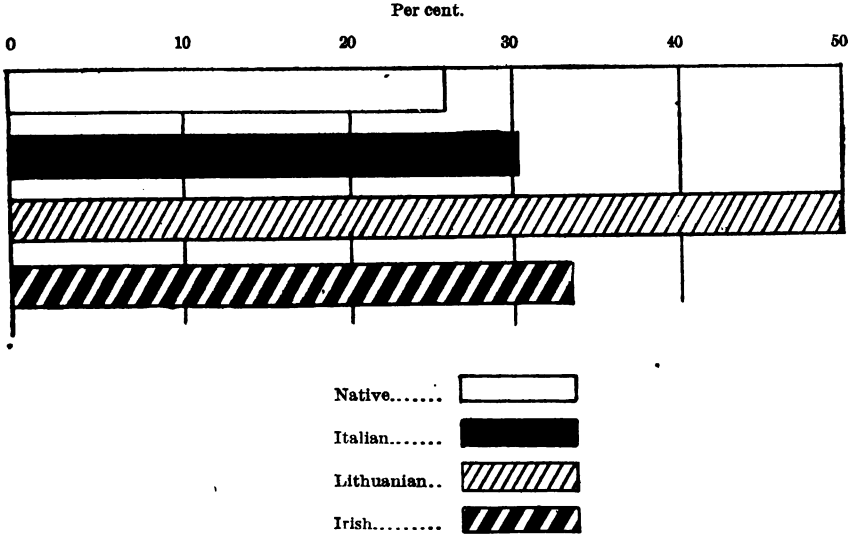


CHART Vc.—PER CENT OF INFANT DEATHS CAUSED BY GASTRIC AND INTESTINAL DISEASES, ACCORDING TO NATIONALITY OF MOTHER.



Safety in the use of artificial feeding is greatly increased by proper and intelligent care. Such care depends not only upon the intelligence of the mother, but also upon her financial ability to provide proper food and competent medical supervision. The influence of income on the survival of artificially-fed infants is discussed in the section on feeding.[1]

Consideration of the foreign-born groups shows most strikingly that increased income alone will not assure safety to the artificially fed infants.

The highest percentage of deaths from gastric and intestinal diseases among all artificially-fed infants was found among the Lithuanians, the group with the lowest earnings; the second highest percentage of infant deaths from these causes occurred among the Irish, although their incomes from fathers' earnings were exceeded only by those of the native families. In the native groups there existed a coincidence of high incomes, extensive artificial feeding during the early part of the infants' first year, and a low percentage of deaths from gastric and intestinal diseases. It should also be taken into consideration here that the native mothers had much smaller families than did the foreign born, so that even the native families in the lowest income group enjoyed a better standard of living than the foreign-born families in the same group.

Ignorance.—A primary cause to which but slight recognition has been given is the fatalistic acceptance of the deaths of their children by a large number of the foreign-born mothers. Many of the Lithuanian mothers of Waterbury exhibited a striking lack of knowledge of the causes from which their babies died and seemed surprised that anyone should think it possible to prevent the deaths of those ordained to die in infancy. Even those mothers who knew the causes were ignorant of the fact that many of these deaths were preventable. One Lithuanian mother lost 5 of her 11 children before they had lived 10 months and 4 had died of "stomach trouble." The death certificate for the last baby showed "acute colitis" as the cause of death. The mother's custom was to give the newborn baby the bottle at his first feeding, but she did not associate this with the "stomach trouble" so common to her children. A Lithuanian mother who had lost 5 of her 8 children in early infancy knew that 2 died as the result of diarrhea and another from an unknown cause; 2 she stated "were always weak." The death certificate for one of these stated "malnutrition—improperly modified milk." This mother, too, fed her babies artificially from the first. Another Lithuanian mother stated that 4 of her 9 children died before reaching 6 months of age, 3 of them from diarrhea, and the last from a severe cold. But the death

[1] See p. 55.

certificate for the last baby showed "bronchitis and malnutrition." An Italian mother who had had 14 pregnancies, stated that 2 were miscarriages, 1 died as the result of bronchitis, 3 from unknown causes, and 5 because they had been "bewitched." The death certificate for the last baby who had been "bewitched" showed the cause of death to be "acute gastroenteritis."

The other foreign-born groups and the native mothers also showed need for education in matters of child hygiene, particularly in regard to diseases of the intestinal tract, which are so largely preventable.

Causes of death peculiar to early infancy.[1]—Diseases of early infancy are second in importance among the causes of infant mortality in Waterbury and are responsible for a higher percentage of the deaths among infants of native mothers (33.3) than among those of foreign-born mothers (30.9).

The Report of the Medical Officer of Great Britain's Local Government Board records:

> Of the total deaths of infants in the first year after birth, about one-fifth occur in the first week after birth, one-third in the first month after birth, and over one-half in the first three months after birth. Nearly all the deaths in the first week and most of the deaths in the first month of life are attributable to antenatal and natal conditions.[2]

In Waterbury 31.6 per cent of all infant deaths were due to conditions existing before the birth of the child or of injury and accident at birth; of those that died under 2 weeks, 72.7 per cent died from these causes.

How many of these deaths in early infancy might have been prevented can not be estimated, but experiments in this direction have proved conclusively that adequate prenatal care will prevent a large proportion. Such care involves education of the prospective mother in proper care of herself during pregnancy, supervision of the patient throughout pregnancy by a skilled obstetrician, together with proper nursing care and adequate obstetrical service at the time of confinement. Such care is beyond the means of many Waterbury women. Poverty necessitates economy in the amount and variety of food, often makes it impossible for the prospective mother to discontinue work until labor pains actually commence, prohibits any medical attention which she feels is not absolutely necessary, and cuts her off in every conceivable way from the care which she should have if she is to bear healthy, live-born children with the least danger and discomfort to herself.

The establishment of free or moderately priced adequate prenatal and confinement service for those women who otherwise could have

[1] The term "causes of death peculiar to early infancy" as used in the tables and discussion includes those deaths due to premature birth, congenital debility, and injuries at birth.

[2] Report Medical Officer, Great Britain's Local Government Board, 1913-14, p. XXXIII.

no supervision during pregnancy would save many infant lives to the community and would reduce materially the enormous amount of unnecessary suffering which at present causes many women to face approaching motherhood with dread and despair.

Principal respiratory diseases.—Respiratory diseases were responsible for 14.8 per cent of the 263 infant deaths considered in this report, ranking third in importance as a cause of infant mortality.[1] This proportion does not differ greatly from the corresponding figure (15.5) for the entire registration area for 1914. In Waterbury the percentage of deaths from this cause among infants of native mothers was practically the same as that among infants of foreign-born mothers, being 14.5 per cent for the former and 14.9 per cent for the latter.

The months January to May, inclusive, registered the greatest number of deaths from respiratory diseases, as shown by Chart IV.[2] In general, deaths from these diseases have been found to be most common in late winter and in the spring; the seasonal incidence is due, it is generally agreed, to increased danger from infection caused by inadequate house ventilation during the colder months.

Results of recent experiments indicate that here, too, the education of the mother is the foundation upon which to build. She must be taught that breast milk and fresh air in adequate amounts afford protection against these diseases; that they are infectious and the baby must therefore be kept away from persons suffering with colds, and that respiratory infections in the infant must receive early treatment under the direction of a competent physician. But preventive work is still in the experimental stages and so far but slight progress has been made.

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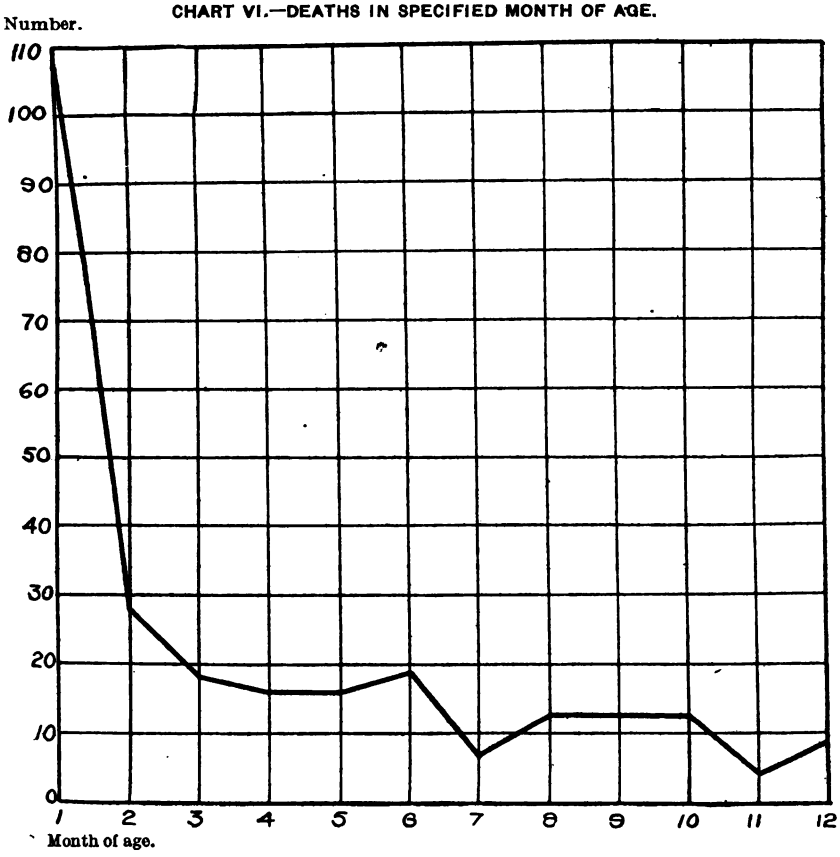
[1] See Chart III, p. 27. [2] See Chart IV, p. 29.

AGE AT DEATH.

The first few days and weeks of life are by far the most hazardous, due in large measure to prenatal conditions. Prenatal conditions largely influence the health of the infant after birth, and the nine months of gestation should be recognized as months of preparation for the difficult adjustment which the infant must make during the first few weeks of life. Proper attention to the importance of this period would prevent not only many of the early deaths but much of

CHART VI.—DEATHS IN SPECIFIED MONTH OF AGE.



the illness of childhood and consequent handicaps throughout life. The hazards of these first months of life are clearly shown in Chart VI; 88[1] of the 263, a little over one-third of the total infant deaths for the 12 months under consideration, occurred before the end of the second week of life; 107 or 40.7 per cent during the first month; 135 or 51.3 per cent in the first two months; and 153 or 58.2 per cent, well over one-half, took place before the end of the third month of life.

[1] General Table 8.

The corresponding figures for the entire registration area of the United States during the year 1914, as shown in Table VI, were 45.5 per cent under one month, 54.7 per cent under two months and 62.3 per cent under three months of age.

The fact that the percentage of deaths from diseases of early infancy is lower for Waterbury is probably due to the high percentage of deaths from gastric and intestinal diseases, the greater number of which occurred after the third month of the child's first year.

TABLE VI.—*Per cent distribution of deaths among infants born in Waterbury during selected year and infant deaths in the registration area in 1914, by age at death.*

Age at death.	Waterbury.	Registration area. [a]
All ages	100.0	100.0
Under 1 month	40.7	45.5
Less than 1 day	14.4	14.6
1 day but less than 2	4.2	5.1
2 days but less than 3	3.8	3.7
3 days but less than 7	6.5	7.3
1 week but less than 2	4.6	6.5
2 weeks but less than 1 month	7.2	8.4
1 month but less than 2	10.6	9.2
2 months but less than 3	6.8	7.6
3 months but less than 6	19.5	16.7
6 months but less than 9	12.5	11.9
9 months but less than 12	9.9	9.2

[a] Derived from U. S. Bureau of the Census Mortality Statistics, 1914, p. 660.

The proportion of deaths during the early months of life is greater for infants of native mothers than for those of foreign-born mothers as shown in the following summary:

Age at death.	Per cent distribution of all infant deaths.	
	Native mothers.	Foreign-born mothers.
Less than 1 month	44.9	39.2
1 month but less than 2	13.1	9.8
2 months but less than 3	8.7	6.2

This result is to be expected, as 55.6 per cent of the deaths occurring during the first two months of life are due to the group of diseases "causes peculiar to early infancy," the most important group of causes of death for infants of native mothers.

MONTH OF BIRTH.

The relation of the month of birth to the age at death and the per cent of infant deaths by month of birth are presented in Tables VII and VIII. The mortality rate was lowest for infants born in October (95) and highest for those born in April (158.8). A study of the

distribution of infant deaths as shown in Table VIII seems to indicate that deaths under 1 month are most frequent among infants born during the winter months, and in the second to the fifth months of life the greater number of deaths occur among babies born in the late spring and in the summer.

TABLE VII.—*Live births during selected year and number and per cent of infant deaths, by month of birth.*

Month of birth.	Live births.	Infant deaths.	
		Number.	Per cent.
The year	2,144	263	12.3
June, 1913	168	20	11.9
July, 1913	151	20	13.2
August, 1913	198	28	14.1
September, 1913	160	20	12.5
October, 1913	179	17	9.5
November, 1913	190	21	11.1
December, 1913	184	24	13.0
January, 1914	188	21	11.2
February, 1914	174	19	10.9
March, 1914	198	22	11.1
April, 1914	170	27	15.9
May, 1914	184	24	13.0

TABLE VIII.—*Live births during selected year and infant deaths occurring in specified month of life, by month of birth.*

Month of birth.	Live births.	Infant deaths.	Deaths in specified month of life.											
			First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Seventh.	Eighth.	Ninth.	Tenth.	Eleventh.	Twelfth.
The year	2,144	263	107	28	18	16	16	19	4	13	13	13	4	9
June, 1913	168	20	9	4	2	1	.....	1	.....	.....	1	1	1	.....
July, 1913	151	20	7	4	5	.....	.....	1	.....	1	1	1	.....	.....
August, 1913	198	28	11	5	1	1	2	2	.....	2	2	1	.....	1
September, 1913	160	20	9	1	1	2	1	1	2	.....	.....	2	1	.....
October, 1913	179	17	6	2	.....	.....	1	3	.....	.....	2	.....	.....	3
November, 1913	190	21	5	3	2	1	1	1	.....	3	1	4	.....	.....
December, 1913	184	24	11	2	.....	1	1	3	2	.....	2	2	.....	.....
January, 1914	188	21	12	2	.....	.....	.....	1	2	2	2	.....	.....	.....
February, 1914	174	19	10	.....	2	.....	2	1	.....	3	.....	.....	.....	1
March, 1914	198	22	11	2	.....	2	1	4	.....	.....	.....	.....	1	1
April, 1914	170	27	8	2	.....	4	5	1	1	.....	2	1	1	2
May, 1914	184	24	8	1	5	4	2	.....	.....	2	.....	1	.....	1

AGE OF MOTHER AND ORDER OF BIRTH.

The infant mortality rate, according to age of mother and order of issue based on all births reported in the maternal histories, is shown in Tables IX, X, and XI. The death rates for babies of extremely young mothers and for mothers aged 40 and over are very high, being 177.6 for the former and 160.3 for the latter. There is a material decrease in the rate for infants of mothers between the ages of 20 to 24 and 25 to 29; the rate rises again for babies born to mothers of the later age groups.

TABLE IX.[a]—*Live births resulting from all pregnancies, infant deaths, and infant mortality rate, according to age of mother.*

Age of mother.	Live births.	Infant deaths.	Infant mortality rate.[b]
All ages	7,507	987	131.5
Under 20 years	518	92	177.6
20 to 24 years	2,368	300	126.7
25 to 29 years	2,451	297	121.2
30 to 34 years	1,418	184	129.8
35 to 39 years	613	87	141.9
40 years and over	131	21	160.3
Not reported	8	6	.....

[a] General Table 9. [b] Not shown where base is less than 100.

Consideration of the births to the same mothers during the selected year only [1] brings out the fact that the rates for all age groups show a similar trend except those for mothers under 20, for which the figures are too small for use in computing a rate. For the births to mothers in the single year of investigation there is a somewhat greater decline in the rate among mothers between 20 and 24, while the death rate of 192.3 for children of mothers 40 and over is even higher than that for mothers of the same age in the group showing all pregnancies.

TABLE X.—*Total births resulting from all pregnancies and per cent of births of specified numbers in order of birth, according to age of mother at birth of infant.*

Age of mother.	Total births.	Per cent of births of specified order.		
		Sixth and later.	Ninth and later.	Eleventh and later.
20 to 24 years	2,458	0.8	.....	.....
25 to 29 years	2,526	10.0	0.6	(a)
30 to 34 years	1,466	37.8	6.7	0.8
35 to 39 years	641	64.0	27.0	9.0
40 years and over	133	83.5	54.9	32.3

[a] Less than one-tenth of 1 per cent.

The variation in the infant mortality rate according to order of pregnancy is brought out in Table XI. The rate for first-born children is 121.9; for second-born, 112.5; and it increases, with slight irregularities, for later-born children with the number of pregnancy to 197.2 for ninth-born children, the latest for which the figures are large enough to compute a significant rate. It is difficult to estimate how much the higher death rate for infants born to women of 40 and over is due to uterine exhaustion from bearing many children and how much it is due solely to age development. Of all children born to women of this age group, 32.3 per

[1] General Table 10.

cent are issues of an eleventh or later pregnancy, 54.9 per cent of a ninth or later pregnancy, and 83.5 per cent of a sixth or later pregnancy. For younger age groups the per cent of children who are issues of a sixth or later pregnancy is smaller and decreases rapidly as the age decreases, being 64 per cent for mothers between 35 and 39 years of age, 37.8 per cent for mothers between 30 and 34, and only 10 per cent for mothers between 25 and 29.

The infant mortality rate for infants of mothers under 20 is very high (177.6) in spite of the fact that nearly 95.4 of the infants considered are first and second born, for which the rate averages 117.8 (mothers of all ages). Not quite one-seventh of all first and second births were to these extremely young mothers. It is evident, therefore, that the age of the mother or some factor connoted by age here exercises an unfavorable influence on infant mortality independent of order of birth. The influence of age alone may be shown by a study of infant mortality rates for first births alone. The rate decreases from 167.5 for infants of mothers under 20, and 117 for ages 20 to 24, to a minimum of 83 for ages 25 to 29, and rises to 161.3 for infants of mothers 30 years old and over.

TABLE XI.[a]—*Live births resulting from all pregnancies, infant deaths, and infant mortality rates, according to order of pregnancy.*

Order of pregnancy.	Live births.	Infant deaths.	Infant mortality rate.[b]
All pregnancies	7,507	987	131.5
Pregnancies:			
First	1,994	243	121.9
Second	1,547	174	112.5
Third	1,171	151	128.9
Fourth	870	109	125.3
Fifth	625	98	156.8
Sixth	426	72	169.0
Seventh	316	46	145.6
Eighth	211	33	156.4
Ninth	142	28	197.2
Tenth	93	14	.....
Eleventh and later	112	19	169.6

[a] General Table 9. [b] Not shown where base is less than 100.

PLURAL BIRTHS.

Of the total pregnancies resulting in plural births 81 were live-born twins, 5 stillborn twins, 8 twin miscarriages, 4 one live-born and one stillborn twin, and one a miscarriage and a live-born baby.

The total number of issues for all pregnancies was 8,339,[1] making the rate for plural births 11.9 per 1,000 issues. This is higher than the corresponding rate for Manchester, which was 10.8.

Seventy deaths occurred among infants who were the result of plural births, giving the exceedingly high death rate of 419.2; in Manchester the rate was 500.

[1] This includes 567 miscarriages not included elsewhere in this report.

TABLE XII.—*Plural births resulting from all pregnancies, infant deaths, and stillbirths, according to age of mother.*

Age of mother.	Total births.	Live births.	Infant deaths.	Still-births.
All mothers	[a] 181	167	70	14
Under 20 years	12	12	6	.....
20 to 24 years	43	39	15	4
25 to 29 years	54	50	20	4
30 to 34 years	52	46	22	6
35 to 39 years	16	16	5	.....
40 years and over	4	4	2	.....

[a] The result of 99 pregnancies, of which 81 resulted in live-born twins, 5 resulted in stillborn twins, 8 resulted in miscarriage twins, 4 resulted in stillborn and live-born twins (4 each), 1 resulted in a miscarriage and a live birth; 5 mothers had 2 sets of twins.

SEX.

In conformity with general experience, the infant mortality rate among the male infants was higher than among the female as shown in Table XIII.

TABLE XIII.—*Births during selected year, infant deaths, and infant mortality rate, according to sex of infant and nativity of mother.*

Sex of infant and nativity of mother.	Total births.	Live births.	Infant deaths.	Infant mortality rate.
All mothers	2,197	2,144	263	122.7
Male	1,115	1,089	150	137.7
Female	1,082	1,055	113	107.1
Native mothers	718	705	69	97.9
Male	373	365	41	112.3
Female	345	340	28	82.4
Foreign-born mothers	1,479	1,439	194	134.8
Male	742	724	109	150.6
Female	737	715	85	118.9

The rate for female infants of native mothers was but 82.4, while the rate for their male infants was 112.3. But even this comparatively high rate for the male infants was lower than the rate of 118.9 for the female infants of foreign-born mothers; the rate for male infants of this group was 150.6.

The proportion of male births to total births is slightly greater for native mothers than for foreign-born mothers; consequently the average for the native mothers is slightly weighted by the excess proportion of male births with higher mortality, while the average for foreign-born mothers is slightly lessened by the relatively low proportion of male births; the true difference between the mortality rates for infants of native and foreign-born mothers is slightly greater than that shown by the difference between the averages for both sexes and is shown by the differences between the rates for each sex separately.

STILLBIRTHS.

It is now recognized that much of the tremendous loss of life before and at birth can be prevented. An analysis of the fetal loss of life in a community has, therefore, a logical place in every study of infant mortality.

Such an analysis, however, can not be made for Waterbury because the State law of Connecticut makes no definite requirements relative to the registration of miscarriages or stillbirths, the general term "births" being used, but not defined in the law.

The total number of stillbirths and miscarriages known to have occurred in Waterbury during the period under discussion was 86,[1] but complete histories were secured for only 53 stillbirths. Even though we accept the former figure, it is obviously much too low, as registration of stillbirths is much more difficult to secure than that of live births, and even a house-to-house canvass may not secure a complete record of stillbirths. Therefore, as the city failed to register over 12 per cent of its live births, and as its laws do not emphasize the necessity for registering stillbirths, a large percentage of the latter probably were not recorded.

Although the figures for stillbirths are admittedly too small and incomplete to permit of detailed analysis, nevertheless they may be taken as an indication of conditions. The distribution of these 53 stillbirths by nationality of mother is shown in Table XIV.

TABLE XIV.[a]—*Births during selected year and number and per cent of stillbirths, according to nationality of mother.*

Nationality of mother.	Total births.	Stillbirths.	
		Number.	Per cent.
All mothers	2,197	53	2.4
Native mothers	718	13	1.8
Foreign-born mothers	1,479	40	2.7
Italian	651	23	3.5
Lithuanian	267	7	2.6
Irish	200	5	2.5
All other	361	5	1.4

[a] General Table 2.

An analysis of the small group for which records were secured shows that the per cent of stillbirths was lowest for native mothers and highest for Italian mothers. In case of births to native mothers, a low proportion of stillbirths was associated with a low infant mortality rate; but for births to Italian mothers a comparatively low mortality rate is accompanied by a high proportion of stillbirths. As stillbirths result largely from the same prenatal conditions which

[1] General Table 1.

cause a large number of the infant deaths in the first few weeks of life, it naturally follows that for any group a low infant mortality rate should not be considered a satisfactory goal unless accompanied by a low stillbirth rate.

That the stillbirth figures for the selected period are much too small is clearly indicated in Table XV, which gives the stillbirth rate for all pregnancies of the same mothers. The rate is higher for every nationality except the Irish, for whom it is six-tenths of 1 per cent lower than that based on the smaller figures.

TABLE XV.—*Total births resulting from all pregnancies and number and per cent of stillbirths, according to nationality of mother.*

Nationality of mother.	Total births.	Stillbirths.	
		Number.	Per cent.
All mothers	7,772	265	3.4
Native mothers	2,027	53	2.6
Foreign-born mothers	5,745	212	3.7
Italian	2,689	139	5.2
Lithuanian	961	26	2.7
Irish	823	16	1.9
All other	1,272	31	2.4

But here, as in the figures for the selected year, the Italians show the highest stillbirth rate, a rate almost twice that of the Lithuanians.

The importance of order of birth, employment of mother, family income, and other factors discussed in connection with infant mortality can not be gauged by the 53 stillbirths for which such data were secured, and a study of stillbirths alone eliminates from consideration a large number of prenatal deaths which are equally significant. Combining all stillbirths and miscarriages reported by the 2,155 mothers visited gives a total of 832 prenatal losses, as shown in Table XVI. The total number of issues to these mothers was 8,339, giving a prenatal mortality rate of 99.8.

At present little attention is paid by some physicians, or even by many mothers themselves, to the losses which occur during the early months of fetal existence. One mother who was interviewed was much amused by the attempt to include all miscarriages in her maternal history, because, as she expressed it "they didn't amount to anything under three months." Although it may never be practicable to insist that *every* pregnancy be recorded, it must be realized that until registration of all *recognized* pregnancies is made compulsory a vast opportunity for the study of measures for preventing prenatal deaths and deaths which occur in early infancy is lost.

TABLE XVI.—*Stillbirths and miscarriages, and mothers reporting specified number of issues of specified kind.*

Kind of issue.	Total issues.	All mothers.	Number of issues of specified kind.							
			1	2	3	4	5	6	8	9
Stillbirths [a]	265	184	137	31	10	3	.....	1	.....	2
Miscarriages [b]	567	363	235	77	34	12	4	.....	1	.....

[a] General Table 11. [b] General Table 12.

Medical causes of stillbirths must be diagnosed in hospitals, where the proper equipment for diagnosis is available. Certain of these causes are extremely important, as emphasized by Dr. J. Whitridge Williams in a study of the limitations and possibilities of prenatal care. He says:

* * * it has long been known that this disease (syphilis) plays an important part in the causation of fetal deaths and should always be borne in mind when successive pregnancies end in the birth of dead children * * *.[1]

The importance of these medical causes of stillbirths has not been overlooked, but they can not be studied in this type of investigation, which aims to discover the social causes which must be considered in connection with the immediate medical cause if a real solution of the problem is to be found.

MATERNITY CARE.

Employment of mother during pregnancy.—Important as medical supervision during pregnancy is, the need for sufficient household help and early cessation from steady employment should be emphasized in the program of adequate prenatal and confinement care.

Housework.—Of the 2,197 births studied, 1,740[2] or 79.2 per cent were to mothers accustomed to doing their household work, including cooking, cleaning, and washing and ironing without any paid assistance; 371 or 16.9 per cent were to mothers having some help, usually a woman to clean once a week or to do the washing; only 71 or 3.2 per cent were to mothers keeping a servant.

Of the 716[3] births to mothers who were gainfully employed during the year before the infant's birth, 558 or 77.9 per cent were to mothers who worked in the home, 519 to those keeping lodgers, and 39 to mothers engaged in some other form of home work. Five hundred and ten births were to mothers who worked up to within two weeks of confinement, most of them continuing up to the day and often to the hour of confinement.

[1] Williams, J. Whitridge. American Association for Study and Prevention of Infant Mortality, 1914, p. 35.

[2] General Table 13.

[3] General Table 14.

Factory work.—Connecticut is one of the four States possessing a law prohibiting factory work for women during the last months of pregnancy.[1]

Of the 95 women who worked in the metal factories, 66 ceased work at least three months before confinement, 15 more stopped before the last month of pregnancy, and only 2 worked up to within two weeks of the baby's birth.

Attendant at birth.—A large foreign population would naturally presuppose the general employment of midwives for confinement services. It is therefore surprising to find that almost half of the foreign-born and more than nine-tenths of the native mothers were attended at the time of confinement by physicians only.

TABLE XVII.—*Number and per cent distribution of births during selected year to mothers of specified nativity, according to kind of attendant at birth.*

Kind of attendant at birth.	Total mothers.		Native mothers.		Foreign-born mothers.	
	Number of births.	Per cent distribution.	Number of births.	Per cent distribution.	Number of births.	Per cent distribution.
All classes	2,197	100.0	718	100.0	1,479	100.0
Physician and midwife	54	2.5	1	.1	53	3.6
Physician	1,405	63.9	686	95.5	719	48.6
Midwife	669	30.5	27	3.8	642	43.4
Other	57	2.6	4	.6	53	3.6
None	11	.4	.....	.....	11	.7
Not reported	1	(a)	.....	.....	1	(a)

a Less than one-tenth of 1 per cent.

In addition one-tenth of 1 per cent of the native and 3.6 per cent of the foreign-born mothers were attended by both a physician and a midwife. These were usually cases attended by midwives in which some complication developed at the time of labor, making it necessary for the midwife to call in a physician to take charge of the case.

Of the 2,197 births included in the detailed analysis which occurred in Waterbury during the selected period, 209[2] cases were attended by physicians in hospitals, 1,250 by private physicians, 669 by midwives, and 69 had either some attendant other than those specified or no attendant, or there was no report upon the case. Of the 669 cases attended by midwives over one-third had no attendants other than midwives whose names do not appear in the State's published directory of licensed practitioners. One unlicensed midwife attended about 90 confinements during the 12 months under consideration, her work being supervised by her daughter (a registered midwife) and by

[1] It shall be unlawful for the owner, proprietor, manager, foreman, or other person in authority, of any factory, mercantile establishment, mill, or workshop knowingly to employ a woman or permit a woman to be employed therein within four weeks previous to confinement or four weeks after she has given birth to a child. Any person who shall violate any provision of this act shall be fined not more than $25, or imprisoned not more than 30 days, or both.—Acts of 1913, ch. 112, secs. 1 and 2.

[2] General Table 16.

a physician. Over one-fifth of the cases attended by midwives, however, received no supervision of any kind.

Midwives attended 3.8 per cent of the births to native mothers, the majority of whom were native born of foreign parents who at the time of confinement were probably influenced by the Old World customs of their mothers. Six hundred and forty-two or 43.4 per cent of the births to foreign-born women were also attended by midwives. This included 447 or 68.7 per cent of the births to Italian mothers, 144 or 53.9 per cent of those to the Lithuanians, and 2 or 1 per cent of the births to Irish mothers.

TABLE XVIII[a].—*Births during selected year to mothers of specified nationality, according to kind of attendant at birth.*

Kind of attendant at birth.	Total births.	Births to native mothers.	Births to foreign-born mothers.				
			Total.	Italian.	Lithuanian.	Irish.	All other.
All classes	2,197	718	1,479	651	267	200	361
Physician	1,459	687	772	171	107	192	302
Midwife	669	27	642	447	144	2	49
Other, none, or not reported	69	4	65	33	16	6	10

[a] General Table 15.

The large number of confinements attended by midwives, usually without any supervision or control, made it seem advisable to obtain some data regarding the nature of the care given by midwives in Waterbury. This information was secured by a supplementary schedule. Many of the mothers refused the information, fearing it would lead to prosecution of the midwife, who, in many cases, was practicing without a license. A little less than one-third gave the required information. These cases were representative, however, of the groups employing midwives, the larger number being Italian and Lithuanian. In the majority of cases the mother and midwife were of the same nationality, although one of the best midwives employed by the Italian mothers was unable to speak or understand Italian and all conversation had to be conducted in the sign language. The Italians in particular associate a strong sense of shame with permitting a man to attend a woman in confinement. Many of the Italian mothers interviewed spoke of this, adding that in Italy no woman would have a man physician, except in cases in which complications developed. The Lithuanian women generally made no comment except to the effect that midwives were as a rule just as good as doctors, did more, and charged less. The extensive service at less cost than the limited services of a physician also impressed the Italian mothers, one of whom exclaimed: "Doctor no good; come one time, good-a-bye; that all. Midwife come eight days, wash bambino, wash mamma. Don't gotta have

nurse. All right." The usual fee for the midwives for eight daily visits following confinement was $8, while the physician's fee for similar service ranged from $15 to $25. But the midwives performed a multitude of services not rendered by the physician and extended their care over weeks, if necessary, without any extra charge, in some cases even making a reduction if the family was unable to pay the usual amount. Frequently the midwife remained in the home, taking the mother's place until she was able to resume her duties. The performance of such intimate offices naturally serve to strengthen the midwife's hold on the family, as they realize that no such services could be expected from the physician. The quality of the confinement care received little consideration, childbirth being regarded more an incident than an event by the majority of mothers interviewed. They frequently waited until the first stage of labor had begun before sending for the attendant. Some member of the family or a neighbor thereupon rushed for the nearest midwife, and, if she happened to be out, anyone suggested by the first person encountered was engaged. In many cases the mother knew only the Christian name of her attendant and one mother who was typical of many said: "I forget her name, I forget her house, I forget all but what she charge."

One reason for the confidence foreign-born women repose in midwives is probably due to their assumption that a midwife in the United States is entitled to the same standing she would enjoy in Europe. There, midwives are usually graduates of schools of midwifery and in most countries the Government supervises all midwives who are licensed to practice.

The Connecticut law provides that a midwife practicing in that State shall pass an examination given by the State board of examiners of midwives and receive from it a license to practice. As insufficient steps are taken to enforce the law, it is widely disregarded. It was evidently framed to apply primarily to medical practitioners and the clauses pertaining to midwives were inserted without appropriate changes being made throughout the law. No person may practice medicine, surgery, or midwifery without obtaining a certificate of registration from the State board of health.[1]

[1] *Requirements for obtaining certificate of registration.*—No person shall obtain a certificate of registration as in section 4714 required until he has passed a satisfactory examination before one of the examining committees appointed for the purpose by the State board of health, nor until he has filed with said board duplicate certificates signed by a majority of said examining committee, stating that they have found him qualified to practice either medicine, surgery, or midwifery, nor until he has filed with said board duplicate statements subscribed and sworn to by him upon blanks furnished by said board, giving his name, age, place of birth, and present residence, stating of what medical college he is a graduate, and the date of such graduation, together with such other information as shall be required by said blanks. No person shall be eligible to said examination until he presents to the committee, by whom he is to be examined, satisfactory evidence that he has received a diploma from some legally incorporated medical college. Any person passing such examination and filing said certificates and statements shall receive from said State board of health, upon payment of two dollars, a certificate of registration, which shall state that the person named has been found qualified so to practice.—A Manual of Statutes of Connecticut relating to the Public Health and Safety, 1902, sec. 4715.

If an applicant for the practice of midwifery is accepted for examination she pays $10 instead of the $15 exacted for those desiring to practice medicine or surgery. She is not required to have a knowledge of English, but an opportunity for deception is offered by that section of the law providing that if an applicant does not understand or speak English the examination can be conducted through an interpreter of the language which the applicant understands. Penalties are provided for violation of the act.

Many mothers interviewed knew that the midwives they employed were not licensed, but they were unable to understand the reason, especially in cases where their services had been more satisfactory than those of the licensed midwives.

Only one midwife was found who gave any prenatal care which could compare with that given by a clinic or a well-trained obstetrical nurse. She made frequent urinalyses and always referred the case to a physician whenever traces of albumen made their appearance. She instructed the mothers in regard to the proper diet, care of the breasts, exercise, necessary preparation for confinement, and the outfit for the baby. During the confinement period she took the mother's temperature daily; the general testimony was to the effect that she was very clean, using disinfectants and exercising great care in all that she did. Her charges varied from $5 to $18, according to the financial standing of her patients, but so far as could be learned the same skilled attention was given to all.

At the other extreme were found several midwives who were ignorant and careless, and the incidents related by many of the mothers showed complete ignorance on the part of the midwife of the dangers of infection. One mother reported that as a result of improper care at confinement she became bloated and suffered great pain. She notified the midwife, who gave her no attention except to send an old woman to examine her. The patient continued to grow worse and finally called in a physician, who said he would do nothing for her without examining her. As she would not permit that, he was obliged to retire from the case. When visited over two years after the confinement the woman was still an invalid.

Extremes in confinement care were also found in cases attended by physicians, due, no doubt, to the popular belief, prevalent in all sections of our country, that confinement cases do not require the services of specialists.

Dr. J. Whitridge Williams,[1] in summing up needed reforms in obstetrical education, emphasized the need of "education of the laity that poorly trained doctors are dangerous, that most of the ills of women result from poor obstetrics, and that poor women in fairly

[1] Williams, J. Whitridge. American Association for Study and Prevention of Infant Mortality, 1911, p.194.

well conducted free hospitals usually receive better care than the well-to-do women in their own homes."

He also urges the extension of free obstetrical services such as hospitals and out-patient service for the poor and proper semifree hospital accommodation for those in moderate circumstances, with qualified obstetrical attendant nurses. All of these reforms in obstetrical knowledge and equipment need development in Waterbury if each year over 2,000 of its mothers are to receive proper care during pregnancy and at the time of confinement.

Nursing care during confinement period.—The care of the mother during the two weeks following the birth of the baby is extremely important, as the future health of the mother frequently depends upon her care during this period. Native mothers in general received much better nursing care than the foreign born, slightly more than 20 per cent having hospital care and, in addition to these, over 15 per cent were attended by trained nurses; of the foreign-born mothers only 4 per cent had hospital care and 5 per cent were attended in the home by trained nurses. The mothers of 377 babies or 52.5 per cent of the native group and of 930 or 62.9 per cent of the foreign-born group confined at home had some household help other than the family during the confinement period; but 76 or 10.6 per cent of the former and 407 or 27.5 per cent of the latter were obliged to rely solely upon neighbors or members of the family. It is this group which is so apt to prefer the midwife to the physician, since the former renders the services of the physician, nurse, and servant at far lower cost.

Many of these families were unable to pay for services of any kind, and frequently there was no one except neighbors to do the housework unless it was left for the father of the baby when he returned from work.

Under such conditions mothers with other small children could not remain in bed as long as they should. One Italian mother found it impossible to remain in bed more than four or five days when her last baby, the ninth child, was born, because in addition to caring for the seven children at home, all under 14 years of age, it was necessary for her to do the cooking and laundry work for several lodgers. Since the father of the family earned less than $500 a year it was impossible to hire household assistance, and the only help given the mother was by neighbors and the baby's father.

So long as those families in the lowest wage group do not receive sufficient income to insure at least the necessities of life, plans for adequate free prenatal and confinement care should include sufficient household help to permit the mother to remain in bed as long as advised by her physician.

MATERNAL MORTALITY.

The importance of maternal care, especially during the first few months of life, is in itself sufficient reason for including a study of maternal mortality in a report on the prevention of infant mortality.

The death of the mother at any time during the infancy of the child is prejudicial to its welfare, as the death of the mother removes the child's natural caretaker and another must be substituted. Each change in caretaker is accompanied by changes in standards and methods which can not be otherwise than disturbing to the health of the infant.

Eighteen of the mothers considered in this report died during the 12 months following childbirth.[1] Two of the births to these 18 mothers were stillbirths. Among the 16 live-born babies, instead of the two deaths that would normally have occurred at the average rate for the city (122.7), there were actually six deaths before the end of the first year of life, a rate three times the normal.

In the majority of the cases where the mother died during the early infancy of the child the responsibility for the infant's care was naturally transferred to the father. Unable to care for the child himself, he was forced to hire an outsider to come into the home or to place the child in an institution, unless older children or relatives came to his assistance. An excellent example of the dilemma faced by a father responsible for the care of a motherless infant is found in a family in which the mother died when the baby was 2 months old and the other three little girls were all under 8 years of age. The father, not knowing how to care for the baby, took her to the hospital, not because she was ill but because he did not know what else to do with her. Two weeks later he removed her from the hospital to the home of his sister, who was able to care for her but two weeks, when the baby was returned to the hospital where she remained for almost a month. The father then took the baby to his home in charge of a housekeeper; but, not liking the care given her, took her to a friend, who kept her five days, when she died of "bronchitis and exhaustion." This child was perfectly well and strong at the time of the mother's death, but died less than two months later in spite of the father's earnest effort to provide the best possible care.

[1] The following enumeration gives the death-certificate causes of death and the period elapsing between the day of confinement and the day of death: (1) Puerperal sepsis and cerebral embolism, 7 days; (2) acute nephritis and acute uremic poisoning, less than 1 day; (3) puerperal infection, 7 days; (4) puerperal sepsis, 14 days; (5) puerperal nephritis and general septicemia, 9 days; (6) kidney of pregnancy and uremic convulsions, 1 day; (7) acute parenchymatous nephritis and uremia supervening, 7 days; (8) hemorrhage and pregnancy, less than 1 day; (9) nephritis, pulmonary edema, and exhaustion, 1 day; (10) post partum hemorrhage, acute nephritis, and pregnancy, 9 days; (11) pneumonia and grippe, 8 months; (12) chronic endocarditis and pregnancy, labor, and acute dilatation of heart, less than 1 day; (13) pulmonary tuberculosis and exhaustion, 3 months and 1 day; (14) pulmonary tuberculosis and exhaustion, 15 weeks; (15) lobar pneumonia, 9 days; (16) erysipelas (facial) and interstitial nephritis, 5 months; (17) mitral regurgitation and nephritis, 10 months and 18 days; (18) pulmonary tuberculosis and exhaustion, 7 months.

In the 12 instances of maternal mortality following closely on childbirth the problem of the infant's care was solved as follows: In 4 cases relatives took the baby, 1 was adopted, 1 was boarded in a private family, 1 was placed in an institution, and 5 spent the greater part of their first year of life in hospitals.

Maternal mortality from conditions connected with pregnancy and childbirth.—That the subject of maternal mortality from conditions connected with pregnancy and childbirth has received so little attention heretofore is due to the fact that the relatively small number of deaths of mothers from childbirth has been lost sight of in the large number of normal deliveries. Consideration of the actual figures gives the matter more importance. It is estimated that in the year 1913 there were in the United States 15,376 deaths [1] due to childbirth, and of these 6,977 were due to complications of childbed fever, or puerperal sepsis, a disease which is largely preventable. The best practical method for comparative purposes is to compute the maternal mortality rate on the number of maternal deaths per thousand live births. This rate [2] for the provisional birth-registration area for the year 1910 was 6.5 for all deaths from all diseases connected with pregnancy and confinement, of which 2.9 was from puerperal septicemia and 3.6 for deaths from all other diseases of pregnancy and confinement. For every 154 babies born alive one mother lost her life.

In Waterbury, during the period considered in this study, 10 mothers died from causes resulting directly from confinement; 4 of these deaths were caused by puerperal septicemia. The number of maternal deaths per 1,000 live births from all diseases of pregnancy and confinement was 4.7; from puerperal septicemia, 1.9; and from all other diseases of pregnancy and confinement, 2.8. One mother lost her life for every 214 babies born alive in Waterbury. In addition to the mothers included above, one died the day following confinement and one died in less than two weeks.

Comparative figures for maternal mortality for Connecticut, Waterbury, and the provisional birth-registration area for 1910 are given in Table XIX. Waterbury had a rate of 5.1 for deaths from diseases of pregnancy and confinement, or 0.3 less than the rate for the State and 1.4 less than that for the birth-registration area; and for deaths from puerperal septicemia it had a rate less than that for the other cities shown and 0.5 less than the rate for the State.

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[1] U. S. Children's Bureau publication No. 19, Maternal Mortality, p. 14. [2] Table XIX, p. 51.

TABLE XIX.—*Population estimated as of July 1, 1910, live births, deaths, and death rates per 100,000 population and per 1,000 live births from diseases of pregnancy and confinement for the provisional birth-registration area, the State of Connecticut, and specified cities, 1910.*[a]

State and city.	Population July 1, 1910 (estimated).	Live births 1910.	Deaths from diseases of pregnancy and confinement.								
			Total.			Puerperal septicemia.			All other.		
			Number.	Rate per 100,000 population.	Rate per 1,000 live births	Number.	Rate per 100,000 population.	Rate per 1,000 live births	Number.	Rate per 100,000 population.	Rate per 1,000 live births
Provisional birth-registation area	22,222,404	562,390	3,652	16.4	6.5	1,612	7.3	2.9	2,040	9.2	3.6
Connecticut	1,119,109	27,291	148	13.2	5.4	65	5.8	2.4	83	7.4	3.0
Bridgeport	102,709	2,976	15	14.6	5.0	6	5.8	2.0	9	8.8	3.0
New Haven	134,145	3,772	19	14.2	5.0	10	7.5	2.7	9	6.7	2.4
Waterbury[b]	73 605	2,150	11	14.9	5.1	4	5.4	1.9	7	9.5	3.3

[a] U. S. Children's Bureau publication No. 19, Maternal Mortality, p. 52. The birth-registration area is as established by United States Bureau of the Census. See Mortality Statistics, 1911.
[b] Connecticut Vital Statistics, 1910, pp. 12, 55.

FEEDING.

Improper feeding of infants, especially during the first nine months of life, is one of the most important causes of infant mortality.

The mother who through ignorance, carelessness, or necessity too soon substitutes artificial food for breast milk opens the way for diseases, especially those of the intestinal tract, as was discussed in the section of this report on gastric and intestinal diseases.

Of the 2,197 births included in this report, 2,144 were live born, but of this number 63 did not survive long enough to be fed and for 2 the information secured was incomplete; hence the tables relating to feeding are based upon the remaining 2,079.[1]

Methods of feeding are divided into (*a*) breast feeding; (*b*) artificial feeding, i. e., any feeding from which breast milk has been excluded; and (*c*) mixed feeding, a combination of breast with some other form of feeding.

Owing to the fact that most babies receive more than one kind of feeding during the first nine months, it is necessary in considering either group to classify according to the type of feeding given during the greater part of a specified month.

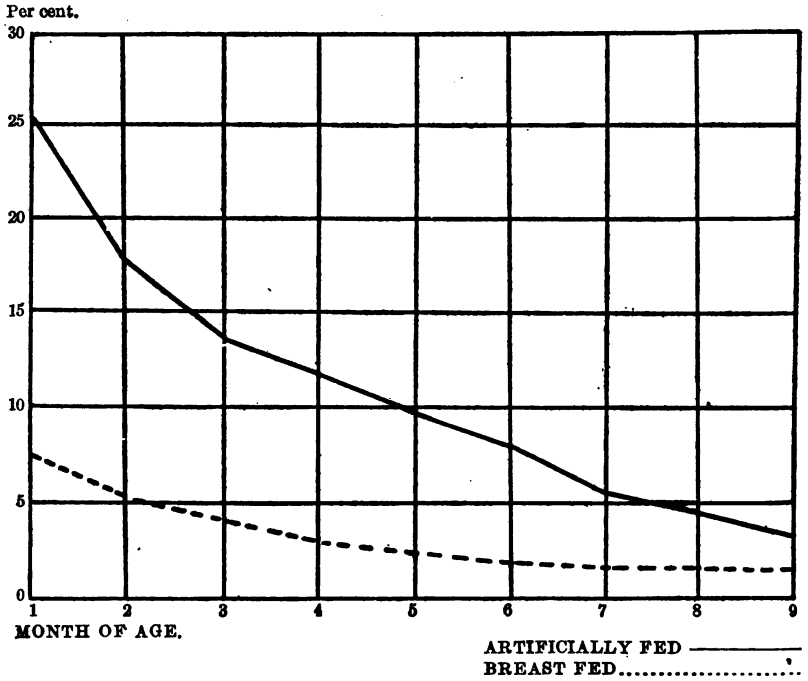
Of the 2,079 infants who lived long enough to be fed, 226 or 10.9 per cent were artificially fed during the first month of life, thereby being robbed of the protection afforded by maternal nursing. It is significant that 58, or more than one-fourth of these infants who were artificially fed from birth, died before the end of their first year, the mortality rate for this group being 256.6, more than twice that for Waterbury as a whole.

[1] General Table 19.

Many of these deaths doubtless resulted from conditions which existed before the birth of the child, and exclusive breast feeding might have been powerless to prevent them. But to rob the already handicapped child of his mother's milk is to remove his most powerful aid in the fight for life; and every effort should be made to secure maternal nursing at least during the early days of life.

This is strikingly portrayed in Chart VII, which shows the per cent of both artificially and breast fed babies alive at the beginning

CHART VII.—PER CENT DYING SUBSEQUENTLY IN FIRST YEAR OF LIFE OF INFANTS SURVIVING AT BEGINNING OF SPECIFIED MONTH OF AGE, BY TYPE OF FEEDING.



of specified months who died before the end of the year. It brings out the fact that a baby breast fed the first month has a slightly greater chance of living until the end of the year than the baby who has survived to the sixth month of life and is artificially fed at that time.

Breast versus artificial feeding.—A comparison of the percentage of deaths through the year for breast-fed and artificially-fed infants according to the type of feeding for any single month will reveal the great advantage the breast-fed baby has over the one who is artifi-

cially fed. Feeding for only nine months of the child's first year has been considered, as after that period breast milk is not, in most cases, essential to his diet. As he approached the time when he could be safely weaned the difference between the death rates for the two groups became less marked. The artificially-fed child had from three to four times as great a mortality as the breast-fed baby at every age through the sixth month of life, as is clearly demonstrated in Table XX. But each succeeding month shows a marked decline in the difference until the ninth month, when the breast-fed group has an advantage of only 1.2 per cent.

Whereas the per cent of deaths for breast-fed babies was only slightly higher for babies of foreign-born mothers in the first six months of life, the differences in the per cent of deaths for artificially-fed infants was marked, being about twice as high for the foreign born during the first three months and over three times as great for the second three months. Such wide differences indicate that there is great need of education among the foreign-born mothers, especially in regard to proper methods of artificially feeding their infants.

TABLE XX.[a]—*Number of infants dying before end of first year of life per 100 infants surviving at the begining of specified month and fed in specified way, according to nativity of mother.*

Month of life and type of feeding.	Total mothers.	Native mothers.	Foreign-born mothers.
First month:			
Breast exclusively	7.4	5.7	8.8
Mixed	15.4	12.5	16.7
Artificial exclusively	25.7	16.3	32.1
Second month:			
Breast exclusively	5.4	3.6	6.2
Mixed	10.5	8.3	11.9
Artificial exclusively	18.4	12.1	23.3
Third month:			
Breast exclusively	4.2	3.1	4.7
Mixed	8.7	.....	12.4
Artificial exclusively	13.8	8.5	18.2
Fourth month:			
Breast exclusively	3.1	2.7	3.2
Mixed	6.4	.....	8.7
Artificial exclusively	12.3	5.8	17.4
Fifth month:			
Breast exclusively	2.5	1.9	2.8
Mixed	4.8	3.0	5.5
Artificial exclusively	10.1	4.1	14.6
Sixth month:			
Breast exclusively	2.2	1.3	2.6
Mixed	3.0	3.3	2.9
Artificial exclusively	8.1	3.3	11.8
Seventh month:			
Breast exclusively	2.1	.8	2.6
Mixed	1.7	2.3	1.5
Artificial exclusively	5.6	2.7	7.9
Eighth month:			
Breast exclusively	2.0	.9	2.5
Mixed	1.2	1.8	1.0
Artificial exclusively	4.8	2.2	6.7
Ninth month:			
Breast exclusively	2.1	1.2	2.5
Mixed	.7	.5	.8
Artificial exclusively	3.3	1.4	4.8

[a] General Table 19.

Mixed feeding.—The above comparisons have not considered mixed feeding, which is not so desirable during the earliest months of the infant's life as exclusive breast feeding but is much better than artificial feeding. Even partial breast feeding somewhat safeguards the infant's digestion and to some extent insures him against early death. Any attempt to discuss the groups "mixed" and "artificially fed" must take into consideration the fact that they included infants receiving every grade of care, from the child whose parents were able to secure for it highly specialized supervision of a medical adviser to the baby who received the scant attention of the untrained and overworked mother who must provide for a large family with an inadequate income.

Through the fifth month [1] the deaths among the babies who had mixed feeding were relatively twice as numerous as among those wholly breast fed, although from one-third to one-half less than for those entirely artificially fed. In other words, where the artificially-fed baby had three chances of dying, the one on mixed feeding had but two, and the one breast fed had only one chance of dying before the end of the first year.

Artificial feeding.—It is commonly stated that native mothers are much more apt to discontinue nursing their children during the early months of life than are foreign-born mothers. Although a comparison of the native and foreign born only would support this theory, a division of the foreign born into component nationality groups shows that throughout the first nine months the per cent of artificial feeding is greater for the infants of Lithuanian mothers than for the infants of native mothers.

TABLE XXI.[a]—*Per cent artificially fed of infants surviving at end of specified month of life, according to nationality of mother.*

Nationality of mother.	First month.	Third month.	Sixth month.	Ninth month.
Native mothers	13.2	26.0	30.6	44.1
Foreign-born mothers	9.0	15.8	22.9	29.4
Italian	4.5	8.6	15.3	20.8
Lithuanian	16.4	29.7	39.5	49.3
Irish	9.9	15.2	21.6	29.5
Other	10.9	19.1	26.1	31.4

[a] General Table 20.

If for any month the nationalities be arranged in decreasing order according to the percentage of infants receiving no breast milk, the enumeration will be (1) Lithuanian, (2) native, (3) Irish, (4) Italian. A list of nationalities similarly arranged according to infant mortality rates for the selected period results in the following order: (1) Lithuanian, (2) Irish, (3) Italian, (4) native.[2] With the exception

[1] Table XX, p. 53.

[2] General Table 2.

of the native the relative positions for the specified groups is identical, indicating a direct relation between the infant mortality rate for a nationality and its group method of infant feeding.

Relation of income to feeding.—The predominance of the native in the highest income group suggests that adequate income may have played some part in insuring safety in artificial feeding. This fact seems to be indicated by the figures in Table XXII, which show that as the income from father's earnings increased the per cent of infant deaths decreased for each kind of feeding. But it also shows that the per cent of deaths for artificially-fed infants was much higher than for breast-fed infants in every income group.

Breast feeding is a safeguard to the infant of the poor mother, who may be able to provide good and sufficient breast milk when she would not be able to afford the proper ingredients for artificial food.

TABLE XXII.—*Infants born during selected year surviving at end of 3 and 6 months of life whose fathers earned specified amount, and number and per cent of subsequent infant deaths, according to type of feeding throughout specified period.*

Type of feeding and period of life.	Infant survivors.[a]	Subsequent infant deaths.		Earnings of father.								
				Under $650.			$650 to $1,049.			$1,050 and over.		
				Infant survivors.	Subsequent infant deaths.		Infant survivors.	Subsequent infant deaths.		Infant survivors.	Subsequent infant deaths.	
		Number.	Per cent.		Number.	Per cent.		Number.	Per cent.		Number.	Per cent.
First 3 months	1,989	110	5.5	973	71	7.3	666	31	4.7	305	6	2.0
Breast exclusively	1,467	55	3.7	746	37	5.0	476	14	2.9	217	2	.9
Mixed	36	1	2.8	16	1	6.3	10	.....	.....	10	.....	.....
Artificial exclusively	190	26	13.7	78	14	17.9	66	9	13.6	38	3	7.9
More than 1 type	296	28	9.5	133	19	14.3	114	8	7.0	40	1	2.5
First 6 months	1,938	59	3.0	940	38	4.0	653	18	2.8	300	1	.3
Breast exclusively	1,070	21	2.0	523	11	2.1	364	8	2.2	162	.....	.....
Mixed	27	1	3.7	12	1	8.3	7	.....	.....	8	.....	.....
Artificial exclusively	177	13	7.3	71	7	9.9	63	6	9.5	35	.....	.....
More than 1 type	664	24	3.6	334	19	5.7	219	4	1.8	95	1	1.1

[a] Including those for whom there were no earnings and those not reported.

Of the babies artificially fed at the end of the third month of life 28.1 per cent of the native were in the group whose fathers earned $1,050 and over during the year following the birth of the baby as compared with 7.4 per cent of the Irish and 4 per cent of the Italians; there were no Lithuanians in this income group. (See Table XXIII, p. 56.) The corresponding figures for the babies living at the end of the sixth month show little variation, being 30.8 per cent of the native, 8.3 per cent of the Irish, 4.5 per cent of the Italians, and 1.2 per cent of the Lithuanians.

Of the Lithuanian infants artificially fed at the end of the third month 85.5 per cent had fathers who earned less than $650 during the

year following the birth of the baby, 72 per cent of the Italians and 44.4 per cent of the Irish also falling in this income group.

The feeding methods of the various nationalities were not materially affected by increased incomes.[1] Very few of the Italians substituted artificial for breast feeding in any income group; a large proportion of the native and Lithuanians but not so many of the infants of Irish mothers were artificially fed regardless of the fathers' earnings.

TABLE XXIII.—*Number and per cent in each father's earnings group of infants surviving and artificially fed at end of specified period of life, according to nationality of mother.*

Specified period and nationality of mother.	Total artificially fed infants.[a]	Earnings of father.					
		Under $650.		$650 to $1,049.		$1,050 and over.	
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
3 months:							
Native	171	38	22.2	82	48.0	48	28.1
Italian	50	36	72.0	8	16.0	2	4.0
Lithuanian	69	59	85.5	8	11.6	.....	.....
Irish	27	12	44.4	11	40.7	2	7.4
6 months:							
Native	237	53	22.4	106	44.7	73	30.8
Italian	88	63	71.6	17	19.3	4	4.5
Lithuanian	86	70	81.4	13	15.1	1	1.2
Irish	36	17	47.2	14	38.9	3	8.3
9 months:							
Native	282	57	20.2	123	43.6	95	33.7
Italian	118	86	72.9	23	19.5	5	4.2
Lithuanian	104	85	81.7	12	11.5	2	1.9
Irish	48	20	41.7	20	41.7	6	12.5

[a] Including those for whom there were no earnings and those not reported.

One of the serious handicaps imposed by poverty is the inability to procure the essentials for successful artificial or mixed feeding, viz, (1) pure milk, (2) equipment for preparing and keeping modified milk, (3) supervision by a physician with special training in methods of infant feeding, and (4) instruction in preparing and using the formulas prescribed by the physicians.

At the time this investigation was made the supply of safe milk available for the poorer sections of Waterbury was inadequate. Many of the mothers living on the hills on the outskirts of the city were unable to secure milk without going down into the city, as, during bad weather, the condition of the roads made it impossible for the dairies to deliver. In the congested districts it was the practice to purchase "bulk" milk from small shops where, during the summer months cans were kept in the heat, open to dust and flies, and the milk was ladled out to customers in a measure covered with dirt and stale if not sour milk.

[1] General Table 21.

Condensed milk.—Many of the mothers interviewed were unable to afford good cows' milk and had substituted condensed milk for all or part of the artificial feeding.

Of the 339 babies who received condensed milk, 101 or nearly one-third were so fed during the first month of life. In 6 cases this form of feeding was advised by physicians, but in general the condensed milk was used because pure cows' milk was not easily obtainable and because condensed milk was cheaper and could be kept longer without ice than cows' milk. Infants fed on condensed milk are often fat but have, as a rule, feeble resistance when attacked by acute disease, especially of the intestinal tract. Of the 339 babies fed on condensed milk the mothers of 126 were native and of 213 foreign born; of the latter, 107 were Italian, 55 Lithuanian, and 19 Irish.

Even though the figures were large enough to permit accurate deductions in regard to the infant deaths among the infants fed on condensed milk, such a rate would not tell the entire story, as it would not measure the effects of condensed-milk feeding on the survivors. Holt tells us it is rare to see a child reared on condensed milk who does not show some evidence of rickets, and its prolonged use sometimes produces scurvy. It is permissible only as a temporary food and should never be used when good fresh cows' milk can be obtained.[1]

Causes for weaning.—The reasons given by the mothers for weaning the 588 [2] babies who were deprived of maternal feeding at the age of 9 months or younger showed that the majority of them believed they were forced to wean their babies, 333 (over one-half) stating that the supply of breast milk was inadequate or had stopped entirely.

Breast feeding is much more universally possible than is generally believed, for scientific research proves that only a few mothers are physically unable to nurse their babies if proper attention is given to the breasts during pregnancy and if persistence and care are exercised immediately following the birth of the baby. Visiting nurses in Waterbury stated that they found among the poorer classes of all nationalities many women whose milk dried before the normal period. Inquiries proved that very few women knew that this could have been prevented by proper diet and care, nor did they realize the importance of breast feeding; particularly was this true of the Lithuanian mothers. One physician who had a large practice among this particular group stated that the Lithuanian women bear beautiful, strong children but are so unwise in their methods of feeding that their babies are peculiarly susceptible to gastric and intestinal diseases.

In every respect the Lithuanian mothers particularly showed need of instruction in regard to prenatal, confinement, and postnatal care. But such care, however excellent, can not entirely neutralize

[1] Holt, L. Emmett. Diseases of Infancy and Childhood, 1916, p. 158. [2] General Table 23.

the effects of poverty; for poverty brings with it overwork, worry, and frequently insufficient food and clothing, and insanitary surroundings.

However, a great deal can be done and needs to be done in Waterbury, where the mothers of only 32 or 5.4 per cent of the babies who were weaned during the first nine months of life, acted upon the advice of physicians.

Of the other babies weaned during this period, 65 had mothers who were ill and unable to nurse them, 72 had mothers who became pregnant and thought weaning advisable, and the mothers of 22 acted upon their own judgment for various slight reasons. A number of mothers stopped nursing when their babies became ill, thereby robbing them of one of their best defenses against disease; a few mothers admitted they disliked to nurse their babies or found that it interfered with their pleasure; only 7 infants had mothers who were forced to make the change by the necessity of performing gainful work away from the baby.

PERIOD INTERVENING BETWEEN PREGNANCIES.

Pregnancy was given as the cause for weaning 72[1] or 12.2 per cent of the babies weaned at 9 months of age or younger. The native mothers did not become pregnant so soon after the last confinement as the foreign-born mothers, none of the former having become pregnant before the last child was 6 months old while 26 of the foreign-born mothers, 20 of whom were Italians, became pregnant before the sixth month of the last child. In several cases the later pregnancy commenced as early as the third month after the last confinement.

One hundred and thirty-four or 6.1 per cent of the mothers of the 2,197 babies included in this study became pregnant within one year of the infant's birth, of which only 22 or 3.1 per cent were native mothers, although they constituted 32.7 per cent of the total number of mothers.

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[1] General Table 23.

TABLE XXIV.—*Births during selected year and number and per cent of births to mothers who became pregnant within one year after birth of infant, according to length of interval between birth and next pregnancy and nationality of mother.*

Nationality of mother.	Total births.	Mothers pregnant within 1 year.		Interval between birth and pregnancy.									
		Number.	Per cent.	3 mos.	4 mos.	5 mos.	6 mos.	7 mos.	8 mos.	9 mos.	10 mos.	11 mos.	12 mos.
All mothers	2,197	134	6.1	4	12	10	9	18	13	18	20	19	11
Native mothers	718	22	3.1	.....	.....	.....	1	5	2	3	5	1	5
Foreign-born mothers	1,479	112	7.6	4	12	10	8	13	11	15	15	18	6
Italian	651	80	12.3	3	11	6	5	9	9	9	12	13	3
Lithuanian	267	8	3.0	1	.....	1	.....	1	.....	1	1	2	1
Irish	200	10	5.0	.....	.....	1	2	1	.....	2	2	1	1
Other	361	14	3.9	.....	1	2	1	2	2	3	.....	2	1

ECONOMIC AND INDUSTRIAL FACTORS.

Occupation of father.—Waterbury's chief industry in 1909, as shown by the 1910 census report [1] was the manufacture of brass and bronze products, 15 such establishments existing at that time employing 10,031 persons, of whom 9,603 were wage earners and 428 salaried employees.

The majority of the fathers of the families considered in this report belonged to the group of wage earners in the brass manufacturing industries which are included in "Manufacturing and mechanical industries" shown in Table XXV.

TABLE XXV.[a]—*Births during selected year in each father's earnings group, according to employment of father.*

Employment of father.	Total births.	Earnings of father.							
		Under $450.	$450 to $549.	$550 to $649.	$650 to $849.	$850 to $1,049.	$1,050 to $1,249.	$1,250 and over.	No earnings and not reported.
All industries	2,197	492	316	286	416	308	135	192	52
Manufacturing and mechanical industries	1,499	418	242	206	276	193	82	70	12
Trade	236	21	27	22	48	44	10	51	13
Transportation	132	21	25	19	29	18	12	8	.....
Public service	43	7	2	9	1	5	14	4	1
Professional and semiprofessional pursuits	52	1	.....	4	4	6	7	30	.....
Domestic and personal service	118	14	13	12	33	21	4	17	4
Clerical occupations (all industries)	72	3	3	10	20	18	6	10	2
Agriculture and forestry	15	4	.....	2	3	2	.....	2	2
No occupation	18	.....	.....	.....	.....	.....	.....	.....	18
Not reported	12	3	4	2	2	1	.....	.....	.....

[a] General Table 24.

[1] U. S. Census 1910, Manufactures, Vol. IX, p. 154.

Only 192, constituting 8.7 per cent of the total 2,197 infants, had fathers who earned $1,250 and over during the year following the birth of the baby.

The 25 factory operatives included in this income group were casters and other skilled laborers, receiving a very high rate of pay. More than one-third of the factory operatives were found to be earning less than $450 and 982 [1] or 94.3 per cent of the factory operatives earned less than $1,050.

Father's earnings.—The earnings of the father for the year following the birth of the baby for whom information has been secured have been considered in this report as the best procurable index of the economic status of the family. Additional income from such sources as mother's earnings outside the home, from lodgers, children's earnings, or regular supplemental income from relatives indicates that the father's earnings were insufficient to provide for the needs of the family without assistance, and the family with an income so supplemented therefore generally belongs in one of the lowest economic groups. Income from investments indicates that the family had more than sufficient for their daily needs and as a rule the father's earnings would indicate one of the higher income groups as the one in which the family properly belonged.

Of the 2,197 [2] infants considered in this report nearly one-fourth had fathers who earned less than $450, more than one-third less than $550, and over four-fifths less than $1,050. The cumulative chart (Chart VIII) brings out the comparatively large proportion of foreign born in the lower income groups.

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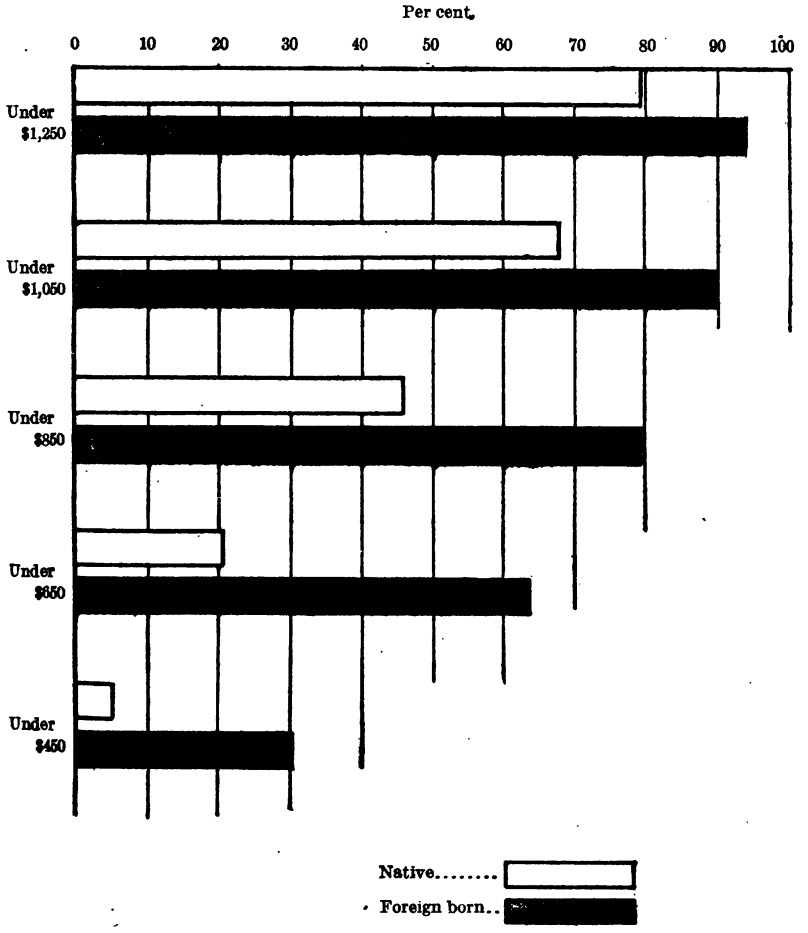
[1] General Table 24. [2] General Table 25.

CHART VIII.—PER CENT OF BIRTHS TO MOTHERS OF SPECIFIED NATIVITY OCCURRING IN FAMILIES WHERE THE FATHER EARNED LESS THAN SPECIFIED AMOUNT.



The foreign-born group was much more poorly paid than the native group, 30.6 per cent earning under $450 for the year, compared with 5.6 per cent of the native. At the other end of the scale 30.4 per cent of the babies of native mothers had fathers who earned $1,050 or over, while only 7.4 per cent of those in the foreign-born group had such large incomes. Of the infants of native mothers the group whose fathers earned $650 to $849 had the greatest number, while of the foreign-born the group earning under $450 contained more than any other. The Italians and Lithuanians occupied the lowest wage level and the native the highest, while the Irish and other foreign born occupied a position midway on the scale.

Even in the lowest income group the native families had an advantage over the foreign-born group due to the smaller size of the family, an advantage maintained throughout every income group, the average approximating one less member for the native than for the foreign-born families.[1]

Infant mortality rate by father's earnings.—The repeated coincidence of the marked and generally regular decline in the infant mortality rate with the increase of father's earnings is strikingly brought out for the four cities charted in Chart IX. Although certain irregularities occur in each curve, these are doubtless due to the small basic figures of the higher income groups.

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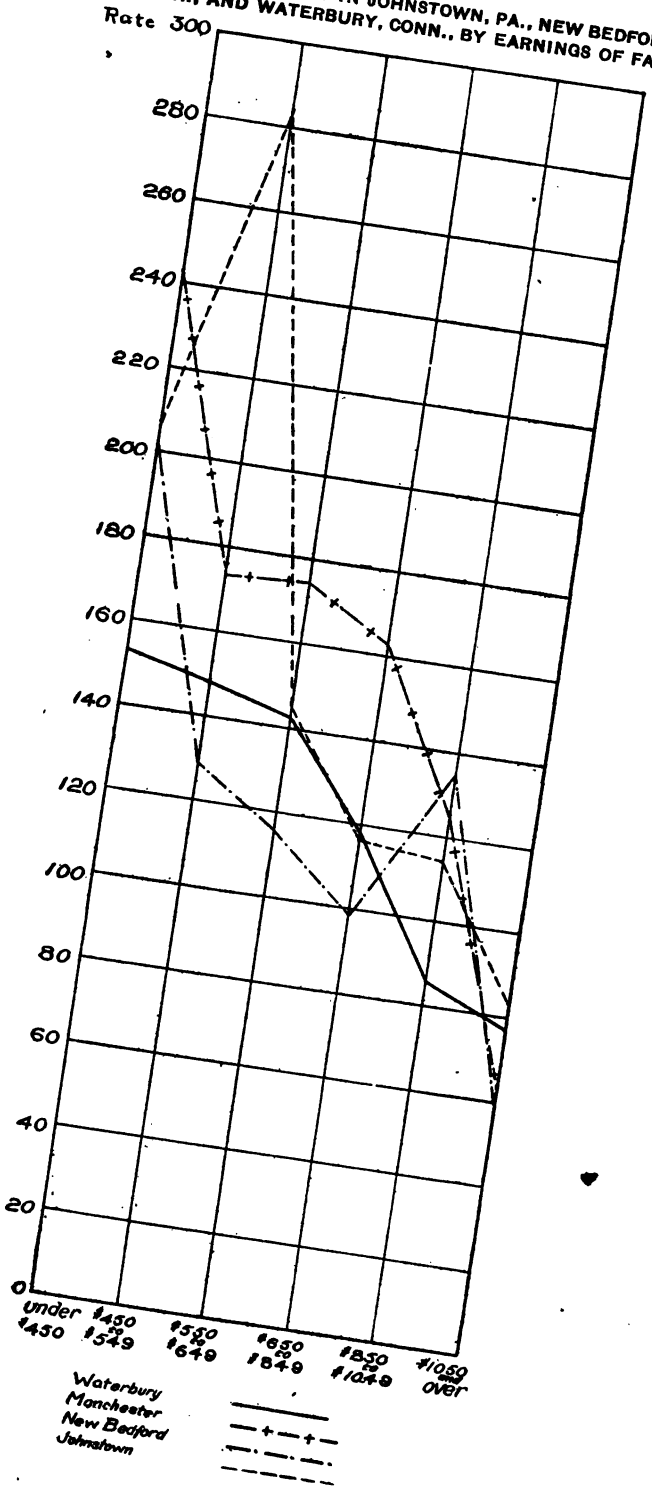
[1] General Table 26.

CHART IX.—INFANT MORTALITY RATES IN JOHNSTOWN, PA., NEW BEDFORD, MASS., MANCHESTER, N. H., AND WATERBURY, CONN., BY EARNINGS OF FATHER.



The infant mortality rate for Waterbury for babies whose fathers earned less than $450 during the year following the birth of the baby was 153; the rate very gradually decreased in the next two income groups, but it did not fall below 100 until the group $850 to $1,049 was reached.

TABLE XXVI.[a]—*Live births during selected year, infant deaths, and infant mortality rate, according to earnings of father.*

Earnings of father.	Live births.	Infant deaths.	Infant mortality rate.[b]
All classes	2,144	263	122.7
Under $450	477	73	153.0
$450 to $549	304	45	148.0
$550 to $649	280	40	142.9
$650 to $849	407	48	117.9
$850 to $1,049	303	26	85.8
$1,050 to $1,249	134	12	89.6
$1,250 and over	190	13	68.4
No earnings	20	4	.....
Not reported	29	2	.....

[a] General Table 27. [b] Not shown where base is less than 100.

A consideration of rates which include also the earlier born children in each earnings group shows the same relation between the infant mortality rate and income, i. e., that the infant mortality rate decreased as the father's earnings increased. The rate was 158.7 in the group earning under $550, decreasing steadily until for the group earning $1,050 to $1,249 the rate was only 96.6; it increased slightly for the highest income group, but the difference is negligible.

TABLE XXVII.—*Live births resulting from all pregnancies, infant deaths, and infant mortality rate, according to earnings of father.*

Earnings of father.	Live births.	Infant deaths.	Infant mortality rate.
All classes	7,507	987	131.5
Under $550	2,949	468	158.7
$550 to $649	969	125	129.0
$650 to $849	1,404	163	116.3
$850 to $1,049	955	96	100.5
$1,050 to $1,249	435	42	96.6
$1,250 and over	575	57	99.1
No earnings	100	24	240.0
Not reported	120	12	100.0

Supplementary earnings.—Of the 2,197 babies considered in this report, 1,249[1] or 56.9 per cent were born into families in which the father's earnings supplied the only source of income for the family

[1] General Table 28.

during the year following the baby's birth. In 32.3 per cent of the families other wage earners added to the family income, and in 10.7 per cent the father's earnings were supplemented by other income. Practically all of this supplementary income from earnings of members of the family other than the father was found in families where the father earned less than $1,050. Only 28 or 3.9 per cent of the births occurring in families where the father's earnings were supplemented by earnings of other members of the family were found in the two highest income groups.

Employment of mother during year preceding birth of baby.—An interesting fact is shown by comparing General Tables 29 and 30. Although the per cent of live-born infants whose mothers were employed the year before confinement was 32.4, only 1.3 per cent higher than the number who worked during the year following the birth of the baby, the mothers of 153 or 7.1 per cent were employed away from home, as compared with 73 or 3.4 per cent during the year following the baby's birth.

The coincidence of a low infant mortality rate with nonemployment of mothers and the much lower rate for infants whose mothers worked at home than for those whose mothers were employed away from home during the year preceding the baby's birth, is brought out in Table XXVIII.

TABLE XXVIII.[a]—*Births during selected year, infant deaths, and infant mortality rate, according to employment of mother during year before birth of infant and nativity of mother.*

Employment of mother during year before birth of infant and nativity of mother.	Tota births.	Live births.	Infant deaths.	Infant mortality rate.[b]
All mothers	2,197	2,144	263	122.7
Not gainfully employed	1,480	1,448	160	110.5
Gainfully employed	716	695	103	148.2
At home	558	542	71	131.0
Away from home	158	153	32	209.2
Not reported	1	1	.....	.....
Native mothers	718	705	69	97.9
Not gainfully employed	594	583	54	92.6
Gainfully employed	123	121	15	124.0
At home	71	70	7	.....
Away from home	52	51	8	.....
Not reported	1	1	.....	.....
Foreign-born mothers	1,479	1,439	194	134.8
Not gainfully employed	886	865	106	122.5
Gainfully employed	593	574	88	153.3
At home	487	472	64	135.6
Away from home	106	102	24	235.3

[a] General Table 29. [b] Not shown where base is less than 100.

Employment of mother during year following birth of baby.—In a city whose industries employ a large number of women it will follow naturally that many are married women with families of small children. Mothers who are obliged to go to work must perforce substitute artificial feeding for nursing and intrust to others the care of their infants. The result is a high infant mortality rate for infants of working mothers. In Manchester, N. H., this rate was 312.9. In Waterbury the number of infants whose mothers were employed away from home during the year following the baby's birth was too small to be a factor in the infant mortality rate for the city; therefore the large percentage of infants artificially fed at an early age and the high infant mortality rate can not be attributed to employment of mothers outside the home. Of the 2,144 live-born infants considered in this report only 73[1], or 3.4 per cent had mothers who were employed away from home at any time during the year following childbirth; and of the 73, 23 had mothers who did not commence work until after the infant's death and 22 had mothers whose work was not resumed until their babies were 6 months old, leaving only 28 or 1.3 per cent of the very young infants whose lives were endangered through the absence of their mothers on account of work.

Relation between low earnings of father and employment of mother.—The effect of low earnings of the father on the mother's employment is shown in Table XXIX, the number of mothers gainfully employed varying inversely with the amount of the fathers' earnings for the three lowest income groups.

TABLE XXIX.—*Births during selected year and number and per cent of births to mothers gainfully employed during year following birth of infant, according to nativity of mother and earnings of father.*

Earnings of father.	All mothers.			Native mothers.			Foreign-born mothers.		
	Total births.	Gainfully employed.		Births.	Gainfully employed.		Births.	Gainfully employed.	
		Number.	Per cent.		Number.	Per cent.		Number.	Per cent.
All classes	2,197	682	31.0	718	111	15.5	1,479	571	38.6
Under $450	492	262	53.3	40	20	50.0	452	242	53.5
$450 to $549	316	124	39.2	46	11	23.9	270	113	41.9
$550 to $649	286	90	31.5	65	13	20.0	221	77	34.8
$650 to $849	416	97	23.3	179	29	16.2	237	68	28.7
$850 to $1,049	308	45	14.6	157	14	8.9	151	31	20.5
$1,050 to $1,249	135	16	11.9	81	5	6.2	54	11	20.4
$1,250 and over	192	19	9.9	137	12	8.8	55	7	12.7
No earnings	22	17	77.3	6	6	100.0	16	11	68.8
Not reported	30	12	40.0	7	1	14.3	23	11	47.8

[1] General Table 30.

The figures shown in this table seem to indicate that economic pressure forced the few mothers in Waterbury who did work to take this method of adding to the family income. But only 682 or 31 per cent of all babies had mothers who were gainfully employed during the year following the birth of the baby, which is much lower than the corresponding rate for Manchester, N. H.—43.9 per cent.

Only 15 of these mothers earned $550 and over, 61.3 per cent, almost two-thirds earning less than $150 during the entire year. Low as these figures are, they are too high to measure accurately the actual financial assistance rendered by the mother.

TABLE XXX.—*Number and per cent distribution of births during selected year to gainfully employed mothers of specified nativity, according to earnings of mother during year following birth of infant.*

Earnings of mother.	All mothers.		Native mothers.		Foreign-born mothers.	
	Total births.	Per cent distribution.	Births.	Per cent distribution.	Births.	Per cent distribution.
All classes	682	100.0	111	100.0	571	100.0
Under $150	418	61.3	50	45.1	368	64.4
$150 to $249	127	18.6	22	19.8	105	18.4
$250 to $349	62	9.1	18	16.2	44	7.7
$350 to $549	24	3.5	7	6.3	17	3.0
$550 and over	15	2.2	4	3.6	11	1.9
No earnings[a]	2	.3	.....	.....	2	.4
Not reported	34	5.0	10	9.0	24	4.2

[a] "No earnings" means failure to pay on the part of the lodger.

Lodgers as a source of income.—Five hundred and forty-four[1] live-born infants, constituting 81.7 per cent of the infants whose mothers were gainfully employed during the year following the birth of the infant, had mothers who kept lodgers during this period. These lodgers contributed varying amounts to the family income. A lodger might rent a room from the family solely for his own use, or he might have it with a member of the family or with a fellow lodger; his rental might or might not include the care of the room, his personal laundry work, and mending; he might be a regular attendant at meals with no responsibility for providing the food for them or he might purchase his own food and pay for its preparation. With so many variations of the term "lodger" it was obviously impossible to do more than tabulate the gross receipts from lodgers as "mother's earnings." In some cases this amount was an underestimate, as in the case where the lodger provided his own food, which frequently served to elaborate the family menu; but in the majority of cases it was much too high, as few mothers were found who were willing to admit that keeping boarders was a lucrative occupation. In many cases meals were served simply as an added attraction to the rooms to be rented.

[1] General Table 31.

Nearly one-fourth of the 2,197 infants had mothers who kept lodgers during the year following the baby's birth. This form of adding to the family income was confined almost entirely to the foreign born, only 7.9 per cent of the natives having lodgers while 66.3 per cent of the Lithuanians and 30 per cent of the Italians kept them. In a number of families six or more lodgers were kept at a time, but in the majority of the cases the number did not exceed two. Sixteen per cent of the Irish had lodgers, but seldom more than one at a time.

TABLE XXXI.[a]—*Births during selected year, number and per cent of births to mothers keeping lodgers, and number of births to mothers keeping specified number of lodgers, according to nationality of mother.*

Nationality of mother.	Total births.	Mothers keeping lodgers.		Number of lodgers.									
		Number.	Per cent.	1	2	3	4	5	6	7	8	9	10
All mothers	[b]2,197	535	24.4	178	164	79	65	23	17	4	2	1	2
Native	718	57	7.9	44	10	1	1	....	1	....	....	....	....
Italian	651	195	30.0	54	59	40	20	11	5	3	2	....	1
Lithuanian	267	177	66.3	30	65	27	35	9	10	1	....	....	....
Irish	200	32	16.0	20	7	2	2	....	....	....	....	....	1
Other foreign born	361	74	20.5	30	23	9	7	3	1	....	....	1	....

[a] General Table 32. [b] Including 3 for whom there was no report.

Size of family and total earnings of family.—Although the total earnings of the family during the year following the baby's birth[1] included the mother's earnings from lodgers, which was not net income, nevertheless it gives a rough measure of the amount which was available for the support of the family.

Not only did certain nationalities tend to have larger families, but the same nationality groups had smaller incomes with which to provide for a greater number, as shown in Table XXXII; 52.1 per cent of the Italians were in the income group under $550, and of this number 37.2 per cent had 5 or more members in the family; 43.4 per cent of the Lithuanians were in the same income group, with 32.8 per cent having 5 or more members in the family; only 22.5 per cent of the Irish were in the lowest income group, but of this number 44.4 per cent had 5 or more in the family; 9.6 per cent of the natives were in this group, and of these only 13 per cent had 5 or more members in the family. In brief, about one-half of the Lithuanians and Italians, one-fourth of the Irish, and not quite one-tenth of the native were in the lowest income group, but even within this group there are degrees of poverty, determined by the extent to which the income must be spread out over the necessities for a varying number of people.

[1] General Table 33.

TABLE XXXII.—*Births during selected year, number and per cent of births in families with total earnings less than $550, and number and per cent of such births occurring in families with 5 or more members, according to nationality of mother.*

Nationality of mother.	Total births.	Births in families with less than $550 total earnings—			
		Number.	Per cent.	With 5 or more members in family.	
				Number.	Per cent.
All mothers	2,197	639	29.1	211	33.0
Native mothers	718	69	9.6	9	13.0
Foreign-born mothers	1,479	570	38.5	202	35.4
Italian	651	339	52.1	126	37.2
Lithuanian	267	116	43.4	38	32.8
Irish	200	45	22.5	20	44.4
Other	361	70	19.4	18	25.7

It therefore follows that although about the same proportion of Lithuanians and Italians fell in the lowest income group, the Italians as a group suffered greater economic pressure due to the larger percentage of families having five or more members.

NATIONALITY.

The 1,479 infants of foreign-born mothers included in this study represented 24 nationalities, of which the most important numerically were the Italian, Lithuanian, and Irish, as shown in the following tabular statement:

Nationality of mother.	Number of births.	Nationality of mother.	Number of births.
Italian	651	German	58
Lithuanian	267	French Canadian	56
Irish	200	English, Scotch, and Welsh [b]	40
Slavic [a]	91	All other [c]	55
Jewish	61		

[a] Including 65 Polish, 20 Russian, 2 Slovak, 2 Bohemian, 1 Serbo-Croatian, and 1 Ruthenian.
[b] Including 18 English, 21 Scotch, and 1 Welsh.
[c] Including 29 Scandinavian, 7 English Canadian, 6 French, 5 Magyar, 3 Syrian, 2 Greek, 1 Dutch, 1 Spanish, and 1 West Indian Black.

In every community having a large number of recent immigrants it is common experience that the latest arrivals must accept what their predecessors have discarded. This is true of the houses in which they live, the work they do, and the wages they receive.

Infant mortality rate by nationality.—The fact that the infant mortality rate for the infants of foreign-born mothers was 134.8[1] and for those of native mothers 97.9 indicates that Waterbury had failed to insure equal opportunities for infant health for all the nationalities within its boundaries. The high rate for the infants

[1] General Table 2.

of foreign-born mothers was due largely to the rate for the Lithuanians (207.7) and the Irish (184.6); the Italians, who form the bulk of the foreign-born population, having the comparatively low rate of 109.9. As no other single nationality is represented by as many as 100 births, the rates for these nationalities are not significant and hence are not shown in detail. For the 356 cases which constitute all other foreign born the rate is 98.3, practically the same as that for the infants of native mothers.

TABLE XXXIII.[a]—*Live births during selected year, infant deaths, and infant mortality rate, according to nationality of mother.*

Nationality of mother.	Live births.	Infant deaths.	Infant mortality rate.
All mothers	2,144	263	122.7
Native mothers	705	69	97.9
Foreign-born mothers	1,439	194	134.8
Italian	628	69	109.9
Lithuanian	260	54	207.7
Irish	195	36	184.6
Other	356	35	98.3

[a] General Table 2.

When all pregnancies are considered the infant mortality rates for each nationality group, except the Irish, show an increase over the rate for the selected year, but the relative order of the different groups varies. The Lithuanians still stand out with the highest rate, but the rate for the Italians is slightly higher than that for the Irish, the reverse of conditions for the selected year. The variations between the rates for all pregnancies and those for the selected year are shown in Table XXXIV.

TABLE XXXIV.—*Infant mortality rates for all issues and for the selected year, according to nationality of mother.*

Nationality of mother.	All issues.	Selected year.
All mothers	131.5	122.7
Native mothers	107.9	97.9
Foreign-born mothers	139.9	134.8
Italian	127.8	109.9
Lithuanian	222.5	207.7
Irish	125.2	184.6
Other	112.0	98.3

Size of family.—The total number of pregnancies according to nationality of mother is interesting as an indication of the tendency of certain nationalities to have large families.

Of the native mothers 82.2 per cent reported no more than four births; 70.3 per cent of the Lithuanians, 64 per cent of the Irish, and

60.6 per cent of the Italians were in the group having no more than four births. Considering the mothers having nine or more births, Table XXXV shows that only 3.3 per cent of the native mothers fell in this group, while 7.9 per cent of the Italians, 7.1 per cent of the Irish, and 6.1 per cent of the Lithuanians had nine or more births.

TABLE XXXV.—*Number and per cent of mothers reporting specified number of births resulting from all pregnancies, by nationality.*

Nationality of mother.	All mothers	1 to 4 births to mother.		9 or more births to mother	
		Number.	Per cent.	Number.	Per cent.
All mothers	2,155	1,522	70.6	119	5.5
Native mothers	704	579	82.2	23	3.3
Foreign-born mothers	1,451	943	65.0	96	6.6
Italian	634	384	60.6	50	7.9
Lithuanian	263	185	70.3	16	6.1
Irish	197	126	64.0	14	7.1
Other	357	248	69.5	16	4.5

Non-English speaking nationalities.—It is true, of course, that a tendency exists among foreign non-English speaking groups to form communities of their own, wherein they retain their native customs and language. This militates against acquiring a knowledge of the customs and language of the United States and makes the assimilation of these groups slow and difficult. But the city whose industries have invited the immigrant is responsible for his welfare, and the realization of this fact should come first to those members of the community who have longest resided in it. Upon them rests the responsibility for farsighted preventive work which will make the immigrant an asset to the community instead of a menace.

The two most important non-English speaking groups in Waterbury were the Italians and the Lithuanians.

Lithuanians.—A large majority of the Lithuanians lived in the southwestern section of the city known as Brooklyn, along the Naugatuck River, in wards 3 and 4, where they continue their own customs. Although not given to associating with other nationalities they are sociably inclined among themselves, and those who know them find them intelligent, full of fancy and poetry, with a deep-rooted family affection. But toward those with whom they are unacquainted they display a disposition to taciturnity, which gives rise to the popular idea that the Lithuanians are a stolid, indifferent race, little given to demonstration of any sort. Few of the Lithuanians who settle in the cities of the United States are familiar with city life. Lithuania is primarily an agricultural country where the outdoor farm work is shared by men and women alike. One mother

visited said that from the time she was 7 years old until she was 14 she worked as a shepherdess. Then, being strong enough to do a man's work, she worked in the fields planting and harvesting the crops. She was a short, sturdy woman, with rusty yellow hair, a stout, but powerful figure, and, like many of the Town Plot Lithuanian women, wore no shoes or stockings in the house.

Italians.—Some Italians were to be found in every ward in the city,[1] and those living in the congested sections suffered from all the housing evils described in the special housing section of this report. But their native desire to own a piece of land led many out of the crowded valley to the hilltops, where improvements were nonexistent and land was cheap. Here they could create a mode of life comparable in many ways to that to which they were accustomed in Italy. One colony was found on the outskirts of eastern Waterbury, near Reidville, and another in the northern section of the city, on Chestnut Hill, in the vicinity of Lakewood.

The male members of these groups were forced to arise before 5 o'clock in order to reach the factories in which they worked, and they did not return home until 7 o'clock in the evening. In wet or winter weather the roads leading from these sections to the car lines were almost impassable, but in spite of these difficulties they preferred their hilltop homes to the congestion of the city.

One mother in the Lakewood colony led the agent to the crest of the hill which overlooks the city. She pointed to the blue pool of a disused reservoir in the immediate foreground, the fringe of forest about the edge of the city, and then to the crowded section of the city. The interpreter's literal translation of her words was singularly forceful: "There, dirt and much people; here, beauty and room and garden." These gardens, which were cared for on week days entirely by the women, might well serve as models of intensive cultivation. Each house, whether it was a shack or a modern house, had its own plat of ground, usually defined by a stone fence or a well-kept hedge. Each garden had at least a few grapevines and there were several large vineyards located on the hillside in true Italian style. Practically all the garden produce was consumed by the families themselves. One mother stated that all the food for the family except flour and macaroni was obtained from chickens and the garden.

In the Reidville colony the Italian love of the picturesque found expression in the tinting of the cement of which many of their houses were made.

These rural colonies did not enjoy the modern sanitary conveniences provided for their countrymen who lived in the center of the city, but they had an abundance of fresh air and room and in the

[1] See Table III, p. 24.

summer no doubt they had advantages over the city dwellers. But in the winter the room overcrowding was as great as tenement overcrowding in the city, fresh air as vigorously excluded, and the lack of water-supply and sewage-disposal facilities—serious deprivations at all seasons—created conditions as unfavorable to health as those surrounding the tenement dweller.

Years in United States and ability to speak English.—The extent to which the foreign-born residents of a community can speak English indicates, in a measure, the success of that community in assimilating its foreign-born population.

Of the non-English speaking foreign-born groups in Waterbury the Italians, who came with the last wave of immigration, show a percentage of 17.5 [1] in the United States less than three years, while 39.8 per cent of their number had been here nine years or more. The most recent arrivals are the Lithuanians, 12.7 per cent having been in this country less than three years and but 32.2 per cent nine years or more.

As the non-English speaking immigrants tend to settle in colonies, length of residence in the United States does not necessarily indicate that they have to any appreciable degree given up the language and customs of their fatherland. If the children do not attend the public schools, it is possible for native Americans of foreign-born parentage to grow to maturity and even become parents themselves without a speaking knowledge of English. Three such mothers were found in Waterbury. More than three-fourths of the Italian mothers and nine-tenths of the Lithuanian mothers were unable to speak English. Thus they were isolated, except for such information in regard to "American ways" as was absorbed from the father or the children.

Of the English-speaking foreign born the largest group was the Irish, who came to Waterbury with the earliest immigration. There have been but few recent additions to their number, approximately 1 per cent of the Irish mothers visited having been in the United States less than three years and more than four-fifths, nine years or longer.

The infant mortality rate for the infants of foreign-born mothers, as shown in Table XXXVI, was 134.8. For the infants of those foreign-born but English-speaking nationalities, such as the English, Irish, etc., the rate was 181.8 as compared with 125.3 for the non-English speaking nationalities. The comparatively low rate for non-English speaking nationalities is largely due to the preponderance of Italians, for whom the infant mortality rate was only 109.9.

Considering the infant mortality rate for non-English speaking nationalities according to their ability to speak English, Table

[1] General Table 35.

XXXVI shows a much higher rate for the group unable to speak English. But this does not hold true for the Italians, the rate for those able to speak English being 122.6, while it is only 105.7 for those unable to speak English, a difference which may not be particularly significant owing to the small number of cases upon which these rates are based. It is, however, a matter of common observation that Italian mothers who do not speak English are successful in caring for their children according to Italian customs, of which the most important is giving the baby breast milk the greater part of his first year of life.

TABLE XXXVI.—*Live births to foreign-born mothers during selected year, infant deaths, and infant mortality rate, according to nationality of mother and her ability to speak English.*

Nationality of mother and ability to speak English.	Live births.	Infant deaths.	Infant mortality rate.[a]
All foreign-born mothers	1,439	194	134.8
English-speaking nationalities	242	44	181.8
Non-English speaking nationalities	1,197	150	125.3
Able to speak English	370	37	100.0
Unable to speak English[b]	827	113	136.6
Italian mothers	628	69	109.9
Able to speak English	155	19	122.6
Unable to speak English	473	50	105.7
Lithuanian mothers	260	54	207.7
Able to speak English	19	5	.....
Unable to speak English	241	49	203.3
Other foreign-born mothers	309	27	87.4
Able to speak English	196	13	66.3
Unable to speak English	113	14	123.9

[a] Not shown where base is less than 100.
[b] In addition, 3 native mothers were unable to speak English.

Literacy.—Inability to read and write or to speak English greatly increases the isolation of a mother and thereby lessens her opportunity to profit by the constantly increasing knowledge in matters of health and better living. A large number of the foreign-born mothers in Waterbury were unable to read or write in any language, thus prohibiting any communication with them except through the oral use of their own language.

The number and per cent of illiterates found among the mothers of the 2,197 infants included in this inquiry is given in Table XXXVII. These figures represent a minimum of illiteracy as all claims to literacy were accepted and no tests of any kind were given. There were only four cases of illiteracy among the native mothers. A study of the individual nationality groups included under "foreign born" shows that births to Italians and Lithuanians comprised 88.4 per cent of the births to foreign-born illiterate mothers. The per cent of illiteracy was much higher for the Lithuanians than for the Italians.

TABLE XXXVII.—*Births during selected year and number and per cent to illiterate mothers, according to nationality of mother.*

Nationality of mother.	Total births.	Births to illiterate mothers.	
		Number.	Per cent.
All mothers	2,197	588	26.8
Native mothers	718	4	.6
Foreign-born mothers	1,479	584	39.5
Italian	651	349	53.6
Lithuanian	267	167	62.5
Irish	200	1	.5
Other	361	67	18.6

For both of these nationality groups the infant mortality rate was much lower for the infants of illiterate mothers than for those of literate mothers, as shown in Table XXXVIII. This would indicate that ability to read and write in itself will not necessarily prevent infant mortality, nor is illiteracy, undesirable as it is, sufficient to cause a high infant mortality rate if the mother provides breast milk and intelligent care for the infant. The illiterate mother may be gifted with good judgment or she may have learned through example the proper methods of caring for herself and her baby. But many of the rapidly increasing avenues of public information regarding the most approved methods of infant care are closed to the illiterate mother unless she is given individual instruction either within her home or at an infant welfare station.

TABLE XXXVIII.—*Live births during selected year to foreign-born mothers, infant deaths, and infant mortality rate, according to literacy and nationality of mother.*

Literacy of mother.[a]	Live births.	Infant deaths.	Infant mortality rate.[b]
All mothers	[c] 2,144	263	122.7
Foreign-born mothers	1,439	194	134.8
Literate	872	126	144.5
Illiterate	565	68	120.4
Not reported	2	.....	.....
Italian	628	69	109.9
Literate	291	34	116.8
Illiterate	335	35	104.5
Not reported	2	.....	.....
Lithuanian	260	54	207.7
Literate	96	25	.....
Illiterate	164	29	176.8
Irish	195	36	184.6
Literate	194	36	185.6
Illiterate	1	.....	.....
All other	356	35	98.3
Literate	291	31	106.5
Illiterate	65	4	.....

[a] Persons who can read and write in any language are reported literate.
[b] Not shown where base is less than 100.
[c] Including 4 births to illiterate native mothers.

Ignorance and superstition.—Ignorance in matters of infant hygiene is not confined to any one group of mothers, nor is all ignorance of the same variety. The inexperienced young mother may lack knowledge of the proper methods of caring for her child; but if she is intelligent and financially able to procure competent medical guidance, her ignorance is not so apt to prove injurious to the child.

Interviews with the mothers of the 651 babies in the Italian group and the 267 in the Lithuanian group brought out strikingly for each group the prominent part ignorance and superstition played in the care given the newly arrived infants of these foreign-born mothers.

Comparatively little superstition was found among the Lithuanian mothers, but, as was pointed out in the section on causes of death, the majority of them accepted the deaths of their children with fatalistic fortitude. One Lithuanian mother of 9 children had lost 6 of them, all but 1 of the 6 dying before reaching the first birthday. She had no idea what caused the death of any except the 3-year-old girl who had been quarantined with measles at the time of her death. Another Lithuanian mother who had borne 9 children had lost 5, none of them reaching the eighth month of life, but she could give no information as to the cause of any of the deaths; the death certificate for the last child stated the cause of death as "marasmus and exhaustion." The same ignorance of the causes of infant deaths was displayed by a Lithuanian mother who had lost 10 of the 13 live children she bore. Their ages at the time of death ranged from 5 weeks to 1 year and not one was premature.

The inquiry also brought to light the fact that many weird superstitions of Italian origin were flourishing with Old-World vigor in the very heart of Waterbury. "Charms" to ward off the glances from "the evil eye" and "charm breakers" for those who had been "bewitched" were, in the opinion of many Italian mothers, important factors in the reduction of infant mortality. That there was sufficient popular opinion to this effect to make "charm breaking" profitable was evidenced by two Italian women who supported themselves entirely by this peculiar occupation.

One mother described, with great emotion, their home in Italy, on the outskirts of Naples. The father left them to go to the United States and three years later sent for his wife and children. Then she said: "Food and beauty—they are not so plentiful in this country; but there are not so many witches, and that is better." When questioned about witches she said that both of her children who died in infancy were perfectly "well, happy, and beautiful" until "suddenly they grew thin to skin and bones and died within two weeks." No doctor could discover the cause. Finally one of the family remembered that the mother had changed midwives, and immediately they

knew that the midwife who had been supplanted was the witch who caused the death of the babies.

An 18-year-old neighbor of this Italian mother came in at this point in the story. She was born in the United States and had been educated in the public schools, but she still held firmly to the traditions of her people. When asked if she believed in witches she said: "Yes, indeed. Of course, to be a witch a girl baby must be born at midnight at Christmas. A boy baby born at that time always has some mark of an animal, such as claws or a patch of fur somewhere on his body. He is never quite right and has not a witch's powers." It was the same girl who told of the two women who sold love potions and charms to ward off the evil eye, and also treated the babies who had been bewitched.

Another Italian mother who had had nine pregnancies had a miscarriage, followed by a stillbirth and another miscarriage; and the last baby died at the age of 15 days. When questioned as to the cause, she simply stated that the last baby had been bewitched. The death certificate showed "capillary bronchitis."

It requires a great deal of patient work to substitute for such deep-rooted superstition a knowledge of and belief in the modern methods of infant care. It is not a task for any one person or group of persons, but it needs the combined forces of the city health department, the local nursing organizations, social workers in all branches, the churches, and the parents themselves.

HOUSING.

The importance of housing, water supply, sewage disposal, garbage collection, and care of the public thoroughfares as factors in a city's health program has long been recognized and often discussed. But as yet no method has been devised whereby the effect of each sanitary defect can be measured and expressed in a mortality rate for any given district. Although in general unfavorable conditions are apt to concentrate in definite areas, frequently one district represents the worst phase of only one condition. The infant mortality rate for that district will indicate in a measure the degree to which the good factors predominated, although the difficulty of measuring the importance of sanitary factors is increased by their interrelation with other conditions which affect infant mortality. For example, it is common experience to find that housing evils exist in sections occupied, through economic necessity, by the poorest paid group, who because of poverty, ignorance, indifference, or lack of opportunity are unable to maintain a standard of living conducive to good health and proper development. The proper care of infants involves a great deal besides the mere prevention of death.

They must be kept in good health and surrounded with such family life as will be conducive to their normal development.

These results can not be secured in dwellings where housing evils exist. Sufficient room, conveniences which minimize the mother's household labors, well-constructed buildings which insure freedom from dampness and drafts, adequate toilets, provision for the admission of sufficient sunshine—all of these react to the welfare of both the infant and the mother, upon whom the infant depends for care. Logically, therefore, housing has a place in the program for the reduction of infant mortality. There is a certain minimum of sanitary safety and convenience which the municipality owes to all of its members, particularly to its youngest, who need every possible advantage in early infancy if they are to develop into physically and mentally valuable citizens. It is a generally accepted principle that every city should require owners of houses or tenements so to build or remodel all places of habitation that the tenants can secure sufficient light, warmth, air, and privacy; that the law should provide that such sanitary conveniences as are now considered necessities for urban dwellings be installed, namely, running water, indoor toilets, bathtubs, and sewer connections; that all these, once installed, be kept in order; and that a sufficient number of inspectors be provided to enforce these provisions. The city, however, has but laid the foundations for housing reform when it has complied with these accepted requirements of legislation. It is also a recognized duty of the city to provide educational facilities in regard to all matters of hygienic living, as the provisions for adequate housing accommodations can easily be nullified through the ignorance of tenants.

Waterbury has a tenement-house act which is designed to cover the needs of the city, but its provisions apply solely to tenements erected since its passage, whereas old buildings are those most apt to be insanitary and in disrepair.

The city had only one tenement-house inspector and one sanitary inspector to enforce the provisions of the law, which in 1910 regulated 7,715 dwellings occupied by 73,141 persons. Both dwellings and occupants have greatly increased in number, but Waterbury has made no provisions for a corresponding increase in the staff of inspectors upon whom rests the responsibility for enforcing the housing laws.

General housing analysis.—In considering the housing problem in Waterbury two methods have been adopted: First, a general housing analysis of the facts secured for the homes in which the 2,144 [1] liveborn babies scheduled resided during the greater part of the year after birth; second, an intensive housing study of six scattered dis-

[1] For the 53 stillborn babies the home visited was the one in which the mother spent the greater part of pregnancy.

tricts selected solely on the basis of the bad housing existing within them.

The 3-tenement dwelling was the prevalent type of home in which the infants considered in this report spent the greater part of their first year, or so long as they survived. The 2-tenement dwelling came next in popularity, followed in decreasing order by the 6, 1, 4, 8, 12, and 5-tenement dwellings.[1] The infant mortality rate increased steadily according to the number of tenements in the dwelling from 88 in the 1-tenement dwelling to 174.4 for the 4-tenement dwelling, and dropped to 157.5 for dwellings of 5 tenements and over.

The location of the building on the lot is considered in Table XXXIX, which shows the infant mortality rate for infants living in alley or rear houses to have been 172, while for those living in houses with street frontage it was 120.6.

TABLE XXXIX.—*Live births during selected year, infant deaths, and infant mortality rate, according to location of dwelling.*

Location of dwelling.	Live births.	Infant deaths.	Infant mortality rate.
All locations	2,144	263	122.7
Street	2,048	247	120.6
Alley or rear	93	16	172.0
Not reported	3	.....	.....

Overcrowding within the dwelling, its sanitary condition, and condition of repair have a close relationship to the health of the tenants, of whom the babies are the most susceptible to surroundings.

A rough measure of overcrowding is shown by the average number of persons to a room,[2] but the fact of room overcrowding depends upon the actual use of rooms by the individual family. Newsholme takes as a standard that a house is overcrowded when the number of occupants exceeds double the number of rooms in the house. According to this measure the congestion in 4-room apartments[3] was greater than in any other, in some cases in both native and foreign-born groups as many as 11 persons living in 4 rooms. Room congestion was much more common among the foreign born than among the native, 6.2 per cent of the former and 1.3 per cent of the latter living in dwellings where the occupants exceed twice the number of rooms.

Certain sanitary factors, such as kind and location of toilet, water supply, cleanliness, and ventilation, are of interest in studying housing conditions, but the data on such items as cleanliness, ventilation,

[1] General Table 36. [2] General Table 37. [3] General Table 38.

and condition of toilets, when dependent upon the judgment of several investigators, are not reliable measures.

The kind and location of toilets and the source of the water supply is shown by wards.[1] Privies are admittedly undesirable, but it would be unfair to rate ward 2, in which 14.9 per cent of the toilet accommodations were yard privies, as inferior to ward 1 with only 5.4 per cent privies, unless the indoor toilets of the latter were known to be cleaner, in better repair, and used by fewer persons.

TABLE XL.—*Number and per cent of dwellings in each ward having specified kind of toilet facilities and water supply.*

Item.	Ward 1.		Ward 2.		Ward 3.		Ward 4.		Ward 5.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Privy [a]	25	5.4	50	14.9	57	11.6	58	9.9	43	13.3
Toilet not in dwelling	55	12.0	78	23.2	118	23.9	227	38.8	141	43.7
Water supply other than city	19	4.1	47	14.0	48	9.7	19	3.2	27	8.4

[a] Including 1 case no toilet, third ward.

The neighborhood, type of house, amount of overcrowding—all are in large part determined by the ability of the family to own their home or by the amount of rent they are able to pay. Of the infants of native mothers 11 per cent, and of those of foreign-born mothers 9.6 per cent belonged in families owning their own homes.[2] Owning the home indicates an economic status well above the poverty line, and it is significant that the infant mortality rate for the babies of both native and foreign-born mothers who owned their own homes was much lower than for those of the group who rented their homes. For the latter group the infant mortality rate decreased as the rental increased for both native and foreign born. The foreign born paid much lower rentals than the native, an excellent indication that in general the accommodations they secured were much less desirable. However, rentals do not necessarily represent actual value received in accommodations, as land values and the desirability of the neighborhood are important factors to be considered in a study of rentals.

Of the total number of infants whose families were considered, 9.1 per cent were members of complex households. These included young married couples living with the parents of either husband or wife, or vice versa; married couples who were related keeping house together in order to share expenses; and others who for various reasons desired to maintain cooperative establishments. In general the complex families paid higher rentals than the simple families, necessitated in part by the increase in the number of people living in the house and

[1] General Table 39. [2] General Table 40.

made possible by the combined resources of two or more family groups.

A study of simple households brings out the fact that $10 to $15 represented the prevailing rentals for both native and foreign-born families, but of those renting homes there were 57.5 per cent of the families of infants of foreign-born mothers and 38.5 per cent of those of native mothers who paid this rental. Slightly more than one-third of the native families paid $15 to $20 per month rent, while only one-tenth of the foreign-born families were in this group. In this connection it should be remembered that the same rental paid by native and foreign-born families does not mean comparable standards of living, for, as shown in the section on family income, the native family is smaller than the foreign born. A rental which will provide a comfortable home for a family of three will secure for a large family only accommodations which necessitate overcrowding and attendant evils.

In brief, the findings are that a high infant mortality rate was coexistent with living in houses on the rear of the lot or facing the alley, with overcrowding within the apartment, and with low rentals. But even these facts do not furnish a picture of the actual conditions existing in those sections of Waterbury where its worst housing evils were to be found.

Intensive housing study.—Certain housing items, such as lot, dwelling, and room congestion, repair and ventilation of toilets, ventilation of dwellings, and other matters of household sanitation must be observed by the investigator if the facts secured are to be reliable. Since the intensive housing study was designed to supplement the general study by supplying information on these items, it was obviously necessary to shift to a more direct method than that used in the general inquiry. The latter was based on information supplied by the mother regarding the house in which the infant spent the greater part of his first year, while in the former information was secured from personal observation by the agent at the time of her visit.

Six districts in which the housing accommodations were especially unfavorable to hygienic living were selected after consulting the representatives of various social agencies, who were familiar with the entire city. These districts, rather widely distributed geographically,[1] were representative, not of Waterbury's housing as a whole, but of those sections of the city which constituted its housing problem.

[1] District I consists of French, Anne, and Gilbert Streets, located in ward 3, in the angle formed by Willow and West Main Streets; District II, Railroad Hill, runs through the center of the southern half of ward 4; District III, including Brown Street and North Elm Street between Water and Cherry Streets, in ward 1, lies in the angle formed by North and East Main Streets; District IV is a portion of Bank Street forming the boundary line between wards 3 and 4; District V adjoins the northern part of the Bank Street district, extending between Bank, South Main, and Grand Streets and includes Canal, Chatfield, two short alleyways known as Rear South Main, and that portion of Meadow Street lying between Bank and South Main Streets; District VI, Rushton Place, is entered from South Main Street by an alleyway, just south of Meadow Street. For a description of these districts see Appendix B.

Within these selected districts only 141 (Table XLI) of the 2,144 live-born infants included in the infant mortality study spent the greater part of their first year of life; of these, 14 died before attaining the age of 1 year. These numbers are too small to afford a basis for significant conclusions; therefore no attempt has been made to measure the effect of the special housing evils in these districts upon the infant mortality rate.

Composition of districts.—These districts included a total of 211[1] buildings containing 811[2] apartments (68 of which were vacant at the time of the investigation), in which were housed 5,043[3] persons. In these districts every apartment was visited, every toilet and bedroom inspected, and all bedrooms which obviously were not sufficiently large to meet the legal minimum requirement were measured. A special housing card was filled out with information regarding each apartment, house, and premises, by an agent with special training as a housing investigator, thereby insuring technical treatment of the subject and but one standard of judgment. The districts were selected solely with reference to housing; they included 12 nationalities,[4] native white, native black, Italian, Lithuanian, Irish, Jewish, Polish, French Canadian, Russian, German, English, and Swedish.[5]

The 742 households reported were divided as follows: Twenty-seven or 3.6 per cent native white, 6 or eight-tenths of 1 per cent native black, 408 or 55 per cent Italian, 165 or 22.2 per cent Lithuanian, 50 or 6.7 per cent Irish, 35 or 4.7 per cent Jewish, 26 or 3.5 per cent Polish, and 25 or 3.4 per cent other foreign born. In 141 of these households a birth had occurred during the period under consideration. In three of the districts there were no deaths of the infants included in this study; and the infant mortality rate, based on the total births and infant deaths for the six districts combined, was only 99.3.

TABLE LXI.—*Live births and infant deaths in selected districts, by district.*

Selected district.	Live births.	Infant deaths.
All districts	141	14
District:		
I	7	.....
II	15	1
III	13	.....
IV	61	6
V	42	7
VI	3	.....

[1] General Table 41.
[2] General Table 42.
[3] General Table 44.
[4] In discussing the nationality of households in the special districts referred to on pages 81 to 90 and in Appendix B, the nationality of the head of the household is shown.
[5] General Table 43.

This low rate is explained in part by the large proportion of births occurring in these special housing districts to the two nationality groups having low infant mortality rates, 95 Italian and 10 native, making a total of 105 or 74.5 per cent of all births in these districts. The Lithuanians also show a low rate, but undoubtedly this is due to the small number included, as consideration of all Lithuanians in the city gives the high rate of 207.7.

TABLE LXII.—*Live births and infant deaths in selected districts, according to nationality of mother.*

Nationality of mother.	Live births.	Survivals.	Infant deaths.
All births	141	127	14
Native	10	9	1
Foreign born	131	118	13
Italian	95	85	10
Lithuanian	26	23	3
Irish	1	1	.....
Other	9	9	.....

The wage earners of these districts as a whole, as might be expected, were employed in occupations demanding little skill and consequently offering low wages. Three hundred and twenty-three were employed in the brass factories in occupations ranging from caster to yard laborer; 60 in iron foundries and other iron manufactories; 104 in retail trade as peddlers, small grocers, butchers, etc.; 49 in the building trades in various occupations from carpenter to mason's helper; and 29 as teamsters or truck drivers. There were 56 miscellaneous laborers, and other occupations included teachers, doctors, janitors, street car conductors, and washerwomen.

Lot congestion.—It was found to be impracticable to compute the percentage of area covered on each lot due to the difficulty of measuring lots of irregular shape, the large number of yards used in common by the occupants of several buildings, and the indefinite lot line. Of the premises of the 211 buildings visited, 15 lots or 7.9 per cent were found to be entirely covered, and 83 or 43.9 per cent nearly covered or had only a few square feet of open space.

Number of apartments in building.—Of the 211 buildings visited, 105 [1] or 49.8 per cent were 1 or 2 family houses.

These houses contained only 21.2 per cent of all the apartments visited. Four hundred and nineteen or 51.7 per cent of the apartments were in houses containing 6 or more families, 287 or 35.4 per cent in houses of 8 or more families, 189 or 23.3 per cent in houses of 12 or more families, and 87 or 10.7 per cent were in houses accommodating 16 or more families.

[1] General Table 41.

Number of rooms in dwelling.—One hundred and eighty-four [1] or 24.8 per cent of all the apartments, exclusive of those that were vacant, contained 3 rooms or less; 276 apartments or 37.1 per cent, 4 rooms; 164 or 22.1 per cent, 5 rooms; while 118 or 15.9 per cent had 6 or more rooms.

Rentals.—In the districts canvassed there was a wide range of rentals for apartments varying from $3 [2] to $8 a month for two-room apartments, from $4 to $14 for three-room apartments, from $6 to $16 for four-room apartments, from $7 to $20 for five-room apartments, and from $8 to $32 for six-room apartments, but the average rental per room remained almost stationary, ranging from $2.62 in six-room apartments to $3.01 in three-room apartments, while two-room and five-room apartments averaged $2.85 and $2.70 per room, respectively, and four-room apartments $2.76 per room. The average monthly rental of apartments thus increased proportionately from $5.70 for a two-room apartment to $15.72 for a six-room apartment. Even within the limited areas described, however, the poorer families were being forced, by the increased rental per room, into the smaller apartments, as has already been shown.

Number of persons and rooms in apartment.—To measure the degree of congestion it is necessary to know not only the size of the apartment but also the number of occupants and whether they are adults or children. The number of persons in the household together with the number of rooms in the apartment is shown in Table XLIII

TABLE XLIII.—*Apartments in selected districts with specified number of persons in household, according to number of rooms in apartment.*

Rooms in apartment.	Total.	Apartments with specified number of persons in household.																		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	20	Not reported and vacant.
All classes...	811	5	44	44	77	97	88	99	96	64	41	40	15	10	10	5	3	1	1	71
Rooms:																				
1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	30	1	10	8	5	4	2	...	...	...	...	...	...	...	...	...	...	...	...	...
3	153	1	19	19	30	27	25	17	8	5	1	1	...	...	...	...	...	...	...	...
4	276	1	7	14	22	36	33	41	44	34	19	12	6	4	2	...	1	...	...	...
5	164	1	6	2	11	12	20	26	26	19	15	11	4	2	5	2	1	...	...	1
6	69	...	...	...	9	11	5	9	8	5	4	11	2	2	1	1	1	...	...	...
7	28	...	1	...	...	5	2	3	8	...	2	3	1	...	2	...	...	...	...	1
8	14	...	1	1	...	2	1	1	2	1	...	1	...	2	...	1	...	1	...	...
9	5	...	...	...	...	...	...	2	...	...	...	...	2	...	...	1	...	...	...	...
10	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
11	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Not reported	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Vacant	68	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	68

[1] General Table 42. [2] General Table 45.

To the right of the broken line are shown the number of family groups with two or more persons to a room. There were 240 such families, amounting to 32.3 per cent of the total number reported and including 2,201 persons, or 43.6 per cent, of the total population of these special districts. The high degree of crowding in apartments having two or more persons to a room is exemplified by a family of six living in three rooms. Under such circumstances part of the family must sleep in the kitchen-living room or all six must crowd into the two bedrooms. There were eight instances of families of eight living in three rooms, all eight persons having to sleep in two bedrooms unless the kitchen was used for sleeping purposes. There was one instance of 11 persons living in three rooms. Under these circumstances, even if three persons sleep in the kitchen—which is also dining room and living room—four persons must sleep in each of the two bedrooms. A number of extreme cases may be cited for four-room apartments as follows: Six households with 12 members, four with 13, two with 14, and one with 16, the last showing the extreme congestion of 4 persons sleeping in the kitchen and 4 in each bedroom, or if the kitchen was not used for sleeping purposes, 5 persons in each of two bedrooms and 6 in the other. In addition to the 2,201 persons living in congestion amounting to two or more persons to a room, 183 families, including 1,350 persons, lived in homes congested at a rate of one and one-half but less than two persons to a room, which necessitated using the kitchen for sleeping purposes or two or three persons sleeping in each bedroom. Combining the two groups described we find that 3,551 persons, or 70.4 per cent of the total population of all the districts canvassed were living under conditions of overcrowding at a rate of from one and one-half to four persons per room.

Overcrowding of sleeping rooms.—The legal minimum requirement for sleeping rooms in Waterbury is 500 cubic feet of space for each adult and 300 cubic feet for each child under 12 years.[1] That it is not too high can best be realized by computing the size of a room containing 500 cubic feet of space, in which the legal requirement for height is 8 feet 6 inches. In such a room the floor dimensions are approximately 8 feet by 7 feet 4 inches, a little more than the length of a cot each way. For a child, a room no larger than a fair-sized pantry would meet the legal requirement—one that is 8 feet 6 inches high, with floor dimensions 6 feet by 5 feet 8 inches. Low as this legal requirement is, 3,053[2] persons, or 60.5 per cent of the total population of these selected districts, slept in rooms which did not meet it. In addition 324 persons, over 6.4 per cent, slept in rooms which had *less than one-half* the legal minimum. There were many extreme instances in which the cubic space fell far below that required

[1] Connecticut Public Acts, 1911, ch. 220, sec. 7. [2] General Table 46.

by law, such as that of 2 adults and 3 children, and that of 3 adults and 2 children, for whom the legal requirement was 1,900 and 2,100 cubic feet, respectively, sleeping in rooms containing between 500 and 600 cubic feet of air space, *less than one-third* the legal minimum; another, where 2 adults and 5 children, for whom the legal requirement was 2,500 cubic feet, slept in a room containing between 800 and 900 cubic feet of air space; and again, 3 adults and 5 children in a space containing between 1,100 and 1,200 cubic feet where the requirement was 3,000 cubic feet.

There was considerable variation in bedroom congestion in the six selected districts as shown in Table XLIV and Table XLV, which present, by districts, the total number of bedrooms and the total population of the districts, giving the number of rooms meeting the legal requirements and the number falling below them. Nine hundred and eighty-eight persons, or 77.9 per cent of the population of District V, slept in rooms containing less than the legal requirements for cubic air space. District VI followed with 73.6 per cent, District II with 66.3 per cent, District I with 60.4 per cent, while Districts IV and III had, respectively, 52.4 per cent and 41.3 per cent of illegal bedroom congestion.

TABLE XLIV.—*Bedrooms in selected districts, according to fulfillment of legal minimum requirements of cubic capacity.*

Size of bedrooms.	All selected districts.	District.					
		I	II	III	IV	V	VI
Total bedrooms	1,967	131	309	267	782	432	46
Legal	1,007	66	146	193	445	137	20
Illegal	943	65	163	74	320	295	26
Not reported	17	.....	.....	.....	17	.....	.....

TABLE XLV.—*Number and per cent distribution for selected districts of adults and children occupying bedrooms meeting and not meeting the legal minimum requirements of cubic capacity.*

Size of bedroom.	All selected districts.				District. I			
	All persons.	Adults.	Children.	Per cent distribution of all persons.	All persons.	Adults.	Children.	Per cent distribution of all persons.
All bedrooms	[a]5,043	3,498	1,472	100.0	[b]351	249	90	100.0
Legal	1,917	1,451	466	38.0	127	95	32	36.2
Illegal	3,053	2,047	1,006	60.5	212	154	58	60.4

[a] Including 73 persons for whom there was no report.
[b] Including 12 persons for whom there was no report.

TABLE XLV.—*Number and per cent distribution for selected districts of adults and children occupying bedrooms meeting and not meeting the legal minimum requirements of cubic capacity*—Continued.

Size of bedroom	District.							
	II				III			
	All persons.	Adults.	Children.	Per cent distribution of all persons.	All persons.	Adults.	Children.	Per cent distribution of all persons.
All bedrooms	765	516	249	100.0	632	423	209	100.0
Legal	258	192	66	33.7	371	270	101	58.7
Illegal	507	324	183	66.3	261	153	108	41.3

Size of bedroom.	District.											
	IV				V				VI			
	All persons.	Adults.	Children.	Per cent distribution of all persons.	All persons.	Adults.	Children.	Per cent distribution of all persons.	All persons.	Adults.	Children.	Per cent distribution of all persons.
All bedrooms	[a] 1,917	1,338	518	100.0	1,268	908	360	100.0	110	64	46	100.0
Legal	852	673	179	44.4	280	200	80	22.1	29	21	8	26.4
Illegal	1,604	665	339	52.4	988	708	280	77.9	81	43	38	73.6

[a] Including 61 persons for whom there was no report.

Ventilation.—The size of the room, important as it is, forms an index, more arbitrary than exact, to the adequacy of air in that room. The possibility of proper ventilation is equally important, though more difficult to measure with precision. The law requires window space in each bedroom equal to at least one-eighth of the floor area.

Measurements were not taken to show in how many cases this requirement was met, but in most instances inadequate ventilation was not so much the result of inadequate window space as of too restricted an area upon which the window opened. A window opening upon a narrow passage, court, or lot line, or upon a small shaft can not give proper ventilation, no matter how large it may be. Bedrooms opening upon the street have, on the whole, the best opportunity for admitting light and air. There were 705 such bedrooms, or 35.8 per cent of the total number.

TABLE XLVI.—*Bedrooms in selected districts, according to character of outlook.*

Character of outlook.	Total bedrooms.	District.					
		I	II	III	IV	V	VI
All bedrooms	1,967	131	309	267	782	432	46
No window	46	.....	.....	.....	37	9	.....
Inside window	20	.....	.....	.....	16	4	.....
Shaft	15	.....	.....	.....	14	1	.....
Lot line	13	.....	.....	3	9	1	.....
Court	104	.....	.....	.....	84	20	.....
Passage	555	54	52	99	212	138	.....
Porch	60	3	4	.....	29	24	.....
Alley	1	.....	.....	1	.....	.....	.....
Yard	427	22	145	68	95	51	46
Street	705	48	101	95	281	180	.....
Not reported	21	4	7	1	5	4	.....

Four hundred and twenty-seven or 21.7 per cent of the bedrooms had an outlook upon yards which, though varying in size, probably give the next best opportunity for adequate ventilation. Sixty bedrooms had windows opening upon porches which partially shut out light and air from the rooms. Five hundred and fifty-five bedrooms opened upon passages which, while varying from 6 inches to 6 feet in width, generally did not afford adequate light and ventilation. To a still greater extent did this apply to courts upon which 104 bedrooms opened, and to lot lines (passages 6 inches or less running along the lot line) upon which 13 bedrooms opened. The disadvantages of a bedroom opening upon a shaft of any size are obvious; sometimes the odor of stale air, accumulated rubbish, and dirt is so foul that the window can not be opened at all. Fifteen bedrooms were found having no other openings than those upon a shaft; 20 had no windows other than those opening into another bedroom, kitchen, or hall; 46 contained no windows whatever. In all, 66 bedrooms had no opening upon the outside air, and a total of 707, or 35.9 per cent of all bedrooms, had no better outlook than passage, court, lot line, shaft, or inside room, all of which may be considered inadequate.

Household sanitation.—Serious as the problem of overcrowding is, it is no more serious than the problem connected with household sanitation.

Toilets, their number, location, and condition, are the most important of sanitary conveniences. This special housing study includes 620[1] toilets serving 5,043 persons. Five hundred and eleven, a large majority of the toilets, were each used by one family only, 82 by two families, 11 by three families, 15 by four families, and 1 by six families. The number of persons using a single toilet was often very large; 117 toilets each accommodated from 10 to 14 persons, 28 toilets were used by 15 to 19 persons, 10 by 20 to 24 persons, and

[1] General Table 47.

8 by 25 or more persons. In the group used by 25 or more persons one toilet was used by 32 and one by 33 persons. Combining these groups, we find 2,236 persons, 44.3 per cent of the total population, using toilets which must accommodate 10 or more persons.

In 390 instances toilets were located within the apartment; 125, about one-fifth of the total number, in the hall, 30 in the basement or cellar, 18 on the porch, and 12 (exclusive of privies) in the yard. The 45 dry yard privies constituted 7.3 per cent of the total number of toilets, the 476 persons using them equaling 9.4 per cent of the total population of these districts, an average of 10.58 persons per privy. Hall and porch toilets show an average of 10.22 and 10.78 persons, respectively, per toilet, while yard water-closets show an average of 12.25 persons. Apartment and basement or cellar toilets with averages of 7 and 7.27, respectively, show the lowest average number of persons per toilet.

Not only were the hall, porch, and yard toilets commonly used by a larger number of persons than the apartment or even the basement toilets, but they were usually unlocked and so open to more promiscuous use. They were also apt to be used by more than one household, thus dividing responsibility and with it the chances of cleanliness.

Only 204, 35.5 per cent, of tne water-closets reported were in good condition. In 71 instances filth was found in the compartment or on the bowl or seat, a serious condition, since disease germs (such as those of typhoid fever and gastric and intestinal diseases) may be spread by the flies which find a breeding place here. In 269, almost one-half of all the water-closets reported, the bowl or fixture was found corroded or discolored and the enamel facing broken off, making a rough surface impossible to keep clean and often caked with a black, slimy deposit. Very few of the water-closets visited were free from odor, but this was not especially noted except in 160 cases, where it was so bad as to pervade the apartment and often the entire hallway or house. The uncleanliness of the toilet was frequently caused by its poor repair as well as its use by too many persons. Twenty water-closets did not flush at all at the time of inspection, while 174 did not flush adequately; 249 were found leaking sufficiently to keep the floor wet; and in 77 the seat was either broken or entirely gone. In some instances it had been patched with pieces of tin with rough, rusty edges, or with pieces of leather or unfinished splintering wood fastened with nails sometimes having large rusted heads. Such a condition not only causes discomfort, but may cause serious infection. Only 199, a little more than one-third, were found in good repair.

Closely allied with the condition of the water-closets are the means of lighting and ventilation. One hundred and ninety-two water-

closets, 33.4 per cent of the total number, were found to be light; 207 or 36 per cent were designated as gloomy, and 154 or 26.8 per cent were reported as dark.

Equally important is the possibility of ventilating the toilet and renewing the air which is being constantly vitiated by unclean, broken fixtures. One hundred and five water-closet compartments had no windows whatever, and 48 had windows which did not open either because fixed in the frame and never made movable, or because nailed tight by the landlord, as was found in several instances. In a few cases the compartments without windows were fitted with small ventilating flues, but they seemed to be of no practical value, and the two groups described, 26.6 per cent of the water-closets, were for all practical purposes without any ventilation. Add to these 198 compartments fitted with windows which opened but were inadequate because opening upon small shafts or narrow passages, and the result is a total of 351 water-closets, 61 per cent of the total number, which were inadequately ventilated.

Housing evils in other sections of city.—All the conditions described—the dark insanitary toilets, the crowded ill-ventilated bedrooms, the small congested apartments, the damp cellars, and the yards made foul by uncollected garbage, drainage from sinks or yard privies—all these were found not only in the districts canvassed but in other sections of which those districts were typical. The large tenement type, for example, was found also along portions of South Main, East Main, and Baldwin Streets. On Spring, Brook, School, Scovill, Phoenix, Jefferson, and Union Streets were found types similar to those described in Districts III and V. Parts of South Leonard Street, South Riverside Street, Lafayette Street, and especially River Street had a type of house similar to that in the worst portions of Railroad Hill, and on a part of River Street were found corresponding conditions of yard privies.

CIVIC FACTORS.

INFANT-WELFARE WORK.[1]

In many of our large cities high infant death rates caused largely by unwise feeding of the infants have been lowered through the establishment of infant-welfare stations where well infants are kept in good health through supervision of their feeding, formulas being prescribed by a physician after examination of the infants. The infant-welfare nurse visits the home and instructs the mother in the proper method of preparing the formula and in other matters of hygiene relative to the infant's health. Frequent visits to note the child's condition result in warding off, through early detection and

[1] See Appendix A for report on development of infant-welfare work since the close of the investigation.

treatment of seemingly slight symptoms, many illnesses which might otherwise prove severe.

Visiting nurses association.—At the time this investigation was made there were no infant-welfare stations in Waterbury and the only agency which avowedly did any work for either sick or well babies was the visiting nurses association. Two visiting nurses were assigned exclusively to the work for infants. They received their cases from physicians and social agencies and from personal applications on the part of families. These two nurses did not care for confinement or contagious cases. The greater part of the work was done for sick children, although a little instruction was given for any well children whose mothers wished advice in regard to weaning.

Obviously two nurses can not adequately care for even the sick babies in a community of almost 83,000. It naturally follows that preventive work with this inadequate number of nurses, if done at all, will be more or less haphazard, for no constructive plan can be made and carried out without an adequately supported staff of sufficient size.

Free milk.—At the time of this investigation no milk stations existed in Waterbury, but the visiting nurses association received annually from the city $400 for the purchase of milk to be distributed free to any person recommended by the association. Some of this milk was given to mothers for the babies, but the greater part was given to invalids.

Ice.—This association also distributed ice boxes and ice tickets during the summer. The work was necessarily very limited owing to lack of funds. It was, however, felt by the nurses to be a very important factor in the health of artificially-fed babies, as without ice the mothers could not keep cows' milk in condition fit for use.

Little Mothers' League.—The Waterbury Girls' Club organized a Little Mothers' League, consisting of 78 little girls, who met at Leavenworth Hall three times a week for 30 weeks to receive instruction from a visiting nurse in the proper methods of caring for babies. Many of these children were daughters of non-English speaking parents, so that the children themselves became instructors of their mothers in the American methods of raising babies.

COUNTY HEALTH OFFICER.

The county health officer's duties include the supervision of local health officers, authority in case of local epidemics, responsibility for rural conditions, and enforcement of the law relating to vital statistics.

CITY HEALTH DEPARTMENT.

The Waterbury department of public health consists of a board of five commissioners, a clerk, 1 health officer, 1 sanitary inspector, 1 tenement house inspector, 1 milk and food inspector, 1 supervisor of garbage, 2 medical inspectors of schools, 1 bacteriologist, and 2 school nurses.

These are all full-time positions with the exception of the health officer, who is expected to plan and supervise the work of his entire department by devoting to it only a few hours a day and he receives therefor the exceedingly small compensation of $1,200 per annum.

In his report for the year 1914 the health officer states:

> This department had at its disposal, for the year 1914, $29,864.75. Of this amount $14,188 was allowed for collection and disposal of garbage, leaving for actual health work $15,676.75, or approximately 17.7 cents per capita.

How inadequate this amount is, is brought out in "A Survey of the Activities of Municipal Health Departments in the United States," [1] which says:

> Far too many of our city health departments undertake far too little in proportion to their opportunities; on the other hand, all too few receive an anywhere near adequate appropriation. Under the circumstances one may reemphasize the suggestion that there should be a minimum yearly per capita figure for a modern department—a kind of minimum wage. The suggestion is not new—having been made by Park in 1911, the figure set by him ranging from 50 cents to $1 according to the size of the city, and by the committee on activities of municipal health departments of the American Public Health Association, its figure being 50 cents. Certainly 50 cents for real preventive measures would be an entirely reasonable figure, and in all probability the time is not far distant when our cities will allow their health departments a dollar a head—an amount still moderate when compared with that spent for police or fire protection.

In his report the health officer calls attention to the fact that—

> Failure to make appropriations for the establishment of milk stations has curtailed this department's influence in its fight against infant mortality. A list of births occurring during the summer months has been compiled by the department, and literature instructing mothers as to the proper care of children has been distributed.

This was the first effort of the kind on the part of the health department, which heretofore, through lack of funds and an insufficient corps of workers, had never been able to do any educational preventive work to reduce infant mortality.

Milk supply.—In the year 1914 Waterbury did not require pasteurization nor the bottling of any of the milk sold within the city, two things which vastly increased the responsibilities and duties of the one inspector, who could not adequately supervise the milk supply for a city with a population of almost 83,000. His duties also included the supervision of all dairies, vehicles, milk cans, stores where milk was dispensed, and the collection of samples for analysis.

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[1] Schneider, Franz, jr., pp. 21, 22.

In the same year an ordinance was passed requiring retail dealers to cleanse all milk cans before returning them to the dairies. According to the report of the health officer the result was a marked decrease of the bacteriological count in samples of milk obtained in certain districts.

The milk and food inspector stated that at least four times each year he visited every farm which supplied milk to the city of Waterbury. His inspections, so far as possible, were made at the milking hour to enable him to inspect the conditions under which the milking was done.

An ordinance requires that "immediately after each cow is milked the milk shall be strained through a fine wire gauze and a layer of absorbent cotton protected on either side by a piece of cheesecloth." But nowhere in the ordinance is it stipulated that these articles for straining shall be sterilized, and when questioned on this point the inspector said that he sometimes found them quite dirty.

The State of Connecticut forbids the use of milk containing more than 1,000,000 bacteria per cubic centimeter. In commenting upon this, State Bacteriologist Prof. Henry W. Conn, in his 1912 report, said:

> While it is thus recognized that bacteriological analysis is of extreme value in determining the quality of milk, it is difficult or impossible to set any bacteriological standard that shall be of equal value in large and small communities. The milk distributed in large cities is on the average older, since it has a much longer transportation than that delivered in the smaller ones, and this inevitably produces the higher count * * *. If, therefore, a bacteriological standard is to be required, it must be graded according to conditions. For example, the last legislature in this State adopted the standard of 1,000,000 bacteria per cubic centimeter. This standard may be reached with the very greatest ease in all of the towns in the State, and beyond question, in the ordinary small communities, much milk which passes this standard may have been produced under careless conditions, have been carelessly handled, or may be too old for proper sale. Hence this standard of 1,000,000 bacteria is no incentive whatsoever to dairymen furnishing small towns to increased carefulness in the handling of the milk, because it can be reached without any special care; and emphasis upon such a standard would decrease, rather than increase, the attention which is given by the dairymen and the milk producer to furnishing satisfactory products. * * * Dairymen in Connecticut * * * have no difficulty whatsoever in producing milk with a bacterial content far superior to that of the standard set by law, and in our communities milk with bacteria above this standard should be unhesitatingly condemned.[1]

The city of Waterbury recognized the need for more stringent legislation and accordingly passed a law that no person should bring or send to Waterbury any milk containing over 300,000 bacteria per cubic centimeter.

Even this standard is not difficult to attain. Dr. Grulee says:

> A count of over 100,000 bacteria per cubic centimeter is certainly not fit for use in nourishing the infant, but a count of 10,000 or below is desirable.[2]

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[1] Connecticut State Board of Health, 1911-12, pp. 153, 154.

[2] Grulee, Clifford G. Infant Feeding, 1914, p. 121.

The bacteriological count is made in the city bacterological department, where disease cultures are also examined; for the year 1914 the bacteriologist examined 1,098 samples of milk for their bacterial content, only 6 of which were found to contain bacteria in excess of the legal maximum.

Two days a week the inspector devoted to inspecting the 350 licensed shop venders of milk. The limited amount of time and the fact that he had no assistance made it impossible for him to inspect them as frequently as desirable.

When a shop is under suspicion of selling low-grade milk and has been reported to the inspector, samples of the milk are tested first from the shop, then from the milk depot from which the milk is distributed, and if necessary are traced back to the farm and to the cows.

Waterbury milk is tested in three ways: (1) By the bacterial count, (2) by straining through fine gauze for dirt, and (3) by qualitative analysis, i. e., to determine the per cent of fat, water, and milk solids.

For the year 1914 the inspector reported the inspection of 550 dairies, 626 stores, and 249 vehicles. In addition, 1,309 samples of milk were examined for dirt and solid contents. Of these, 28 were found below standard.

Garbage collection and disposal.—An important phase of household sanitation is the regular and frequent collection of garbage. Waterbury had, at the time of this investigation, a city ordinance which provided that garbage, ashes, and rubbish should be kept separate; but the superintendent of garbage disposal stated that the city collected the garbage even when mixed with ashes or rubbish to avoid discussion with the tenants. These collections, the ordinance provided, were to be made twice a week from November 1 to May 1 and three times a week the remainder of the year. There was no systematized method of garbage disposal. On days when collections were made the farmers drove in toward Waterbury until they met the garbage wagons. The garbage was then transferred to the farm wagons and hauled to the farms, where it served as food for hogs or as fertilizer. In 1914 the health officer reported[1] that as there were 311 collection days during the year, the annual amount removed was about 12,440 tons. Of this amount one-half was collected by the city teams and the remainder by private collectors.

Ashes and rubbish disposal.—Ashes and rubbish were not collected by the city, but the owner of the house, or in some cases the tenant, was responsible for their removal. As this involved expense and trouble, carelessness naturally resulted. About 50 firms and drivers

[1] Annual Report of the Health Officer of the City of Waterbury, 1914.

were licensed to collect ashes and rubbish, which they must remove from the city, use for filling in their own land, or dump at points (new streets which were being graded or filled in) designated by the superintendent of streets. The street sweepings and manhole and sewer-cleaning wastes were also used with ashes for street grading, except in winter, when they were taken to Brookside, the city poor farm, to be used as fertilizer.[1]

In the districts in which the intensive housing study was made families reported and evidence proved that collections were made very much less frequently than was officially planned. Health laws, moreover, required a covered receptacle of prescribed sanitary type, but this requirement was generally evaded in the special districts canvassed, the garbage frequently being piled in the yard. On Railroad Hill the city apparently made few garbage collections, and the families not feeding the garbage to chickens simply "pitched it down the bank."

Along North Leonard Street obnoxious conditions were found to exist, particularly on the rear lots where garbage and piles of tin cans had accumulated for many weeks, and no steps had been taken by the landlords, tenants, or city to remove them or to make provision for proper containers. Such conditions of accumulated filth result in breeding large swarms of flies, which may become carriers of disease germs. Along the east side of North Riverside Street the back yards border on the Naugatuck River, which suffers, as do most Connecticut streams, from uncontrolled sewage and waste pollution.

Factory waste and sewage disposal.—Factories commonly disposed of their waste by emptying it into the streams, in direct violation of the city ordinance. Both chemicals and oils in factory waste are objectionable and in many places discolor the streams and render them foul smelling. At low water decomposing sludge and other deposits could be seen all along the banks of the river. Including the private sewers, many of which were most insanitary as a result of their insufficient size, the city had only 55.9 miles of sewers, leaving 71.7 per cent of the 198 miles of streets without provision for sewage disposal.[2] This is largely due to the excessive expense of installing any underground service in Waterbury. The city is built upon a rock foundation and all laying of pipes necessitates extensive blasting, which is both a slow and expensive process.

The disposal of waste from dry privies and cesspools was not cared for by the city, nor was its disposal by private property holders supervised.

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[1] This practice has been discontinued.

[2] See map facing p. 97.

WATER SUPPLY.

The city of Waterbury is supplied with water from two large reservoirs 12 miles northwest of the city and two smaller subsidiary reservoirs on the southeast boundary of the city. The latter form a separate system known as the high service and are partly supplied by pumping from the low service. The combined capacity of all reservoirs is 2,950,000,000 gallons.

The city owns all of the land immediately adjoining the watersheds for all reservoirs. No one lives upon the city's land except the caretakers, for whose dwelling a special sewer and drainage system was installed in order to protect the water supply. The entire watershed for all reservoirs embraces about 30 square miles, of which the city owns about 3.

The dam at Morris Reservoir contains an elaborate system for aerating the water as it is drawn into the Wigwam basin. The report of the city engineer says:

> For this purpose four aerating sluices were built in the masonry of the weir wall and connected with the gate chambers of the service-gate house. They are at elevations corresponding to elevations of inlet gates which admit water from the reservoir to the gate chambers and permit of giving the water a maximum exposure to the air in passing from one lake to the other.[1]

There is no filtration system, but the water is stored for various periods of time. Rosenau says:

> Very few parasites pathogenic for man multiply in water under natural conditions. In time they all die out. Hence a stored water is reasonably safe. In addition, the organic matter undergoes decay and returns to its simple mineral constituents. Hence a stored water will in time free itself not only of harmful parasites but also of most of its organic pollution.[2]

The water supplied to Waterbury during seven or eight months of the year has been held in storage for a period of from one to several months. But during the late winter and early spring the melting snow greatly increases the contents of the reservoirs, frequently causing them to overflow. During such periods it is possible for water which has been in storage only a few days to become part of the city's water supply.[3]

Examination of the water supply is made by the State, the samples being collected and supplied by the city water department. From June, 1913, to May 31, 1914, the East Mountain system supply of Waterbury received 12 examinations, the Wigwam Reservoir supply 8, and the Prospect Reservoir 5 examinations. No colon bacilli were found at any examination, and the number of bacteria per cubic centimeter for the entire 25 examinations was under 100 at 13

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[1] Municipal Register, 1913, Waterbury, Conn., City Engineer's Report, p. 28.

[2] Rosenau, Milton J. Preventive Medicine and Hygiene, 1917, pp. 881, 882.

[3] Since this investigation the city has installed apparatus for treating the water with liquid chlorine during the overflow period, thereby insuring a safe water supply.

ROSAL

minations. In October, 1913, the reading of the East Mountain tem was 2,370 bacteria per cubic centimeter, and it was 3,500 in same month for Wigwam Reservoir and only 480 for Prospect servoir.

The typhoid-fever record of a city is generally accepted as some lication of the purity of the water supply. In his annual report 1914 the health officer of Waterbury says:

The city is to be congratulated upon the few cases of typhoid fever occurring ring 1914. There were but 32 cases reported during the year, as compared with 5 of the year previous. There was but 1 death from the disease. In no instant stance] could any evidence be obtained that would lead to the belief that local nditions caused the disease. A pure water supply and an absence of unsanitary aces is responsible for our freedom from typhoid fever.

At the time of this inquiry there were 91.78 miles of main water ipe 4 to 36 inches in diameter, with branch pipes running parallel to his on streets where houses were supplied with city water. The nain and branch pipes were connected with gates, the houses being supplied from the branch pipes. There were a few private mains, but 106.22 miles or 53.6 per cent of the street length of the city were not supplied with city water. Some thickly populated areas were obliged to depend entirely upon wells for their water supply. These were largely dug wells, with inadequate protection against surface drainage, and were frequently placed in dangerous proximity to stables and privy vaults.

Every apartment in the districts specially studied for housing conditions was supplied with running water. In those parts of the city that were supplied with city water only one house was reported that did not have running water piped into it. In this, a two-story cottage, the only faucet was in the musty and ill-smelling cellar, with a ceiling so low that it was impossible to stand erect. The occupant of the cottage, the mother of one of the babies scheduled in the infant mortality investigation, reported that the cellar was always flooded in winter. There was a sink without a faucet in her pantry, but as it was not connected with any drain pipe she threw the waste water into the yard.

The map showing the distribution of the city water supply brings out clearly the need for extended service, particularly in outlying districts.

STREET PAVING.

The Waterbury housewife suffered from the condition of the streets, which were a source of mud in wet weather and dust and dirt in dry weather. Of the 198 miles of streets, 180.7 or 91.3 per cent had no paving, 10.5 miles or 5.3 per cent were paved with what is termed "permanent paving," and 6.7 miles or 3.4 per cent with macadam. The street cleaning was done by a corps of men

in white uniforms and the small section of the city possessing paved streets was kept in good condition. The greater part of the city, however, in spite of oiling or sprinkling, suffered from ill-kept roads. In those sections lying on the steep hillsides, snow in winter, claylike mud in wet weather, and deep ruts partly filled with rocks in dry weather discouraged the residents from unnecessary travel. In some instances the situation works a real hardship, as was illustrated by the cases of families unable to obain fresh milk for the children because of the impassable condition of the hillside roads during the greater portion of the year.

SUMMARY AND CONCLUSIONS.

The causes of infant mortality are numerous and infinitely complex, and effort directed along only one or two lines of improvement will not reduce the infant death rate to the minimum attainable.

This investigation adds to the evidence that infant deaths are more frequent among the families with insufficient incomes and the accompanying evils, such as insanitary surroundings, improper housing, unsuitable and insufficient food and clothing, lack of proper medical attention, and the necessity of adding to the family income through the employment of the mother.

Registration of births.—All cities, particularly those within the registration area, should find their starting place for the reduction of infant mortality in the records of their vital statistics, but this was not possible in Waterbury. For the period under consideration 331 or 12.5 per cent of all births were found not to be registered. Over one-half of all these unregistered births were of the infants of Lithuanian mothers, the group having the highest infant mortality rate, 207.7.

Infant mortality rate.—Of the 2,144 live-born infants upon which this study is based 263 died, giving an infant mortality rate of 122.7. Division of the city into wards shows ward 4 with the highest rate (150.1) and ward 2 with the lowest rate (70.6). These rates, however, are not so significant as those for the various nationality groups.

Nationality.—The rate for the component nationality groups was 207.7 for the Lithuanians, 184.6 for the Irish, 109.9 for the Italians, and 97.9 for the native. The high rate for the foreign born suggests that some of the groups of the foreign born did not enjoy equal advantages with the native families.

A little less than one-third of the births included in this report were those to native mothers, while slightly more than two-thirds were to the foreign-born group; of the latter the chief groups were the Italian with 651 births, the Lithuanian with 267, and the Irish with 200.

Medical cause of death.—Gastric and intestinal diseases caused over one-third of all the infant deaths considered. The per cent of deaths from this group of causes is exceedingly high, being 9.2 per cent higher than that for the registration area in 1914.

Gastric and intestinal diseases caused one-half the deaths of Lithuanian babies, one-third of those among the Irish, approximately the same proportion among the Italian, and slightly more than one-fourth of the deaths among the other foreign born and among the native. Diseases peculiar to early infancy caused about one-third of the infant deaths, but the per cent of deaths from this group of causes and that from respiratory and epidemic diseases were lower than the corresponding proportions for the birth-registration area.

Stillbirths.—Incomplete registration of stillbirths made analysis of stillbirths for the year under consideration impracticable. But study of all stillbirths resulting from all pregnancies of all mothers interviewed brought out the fact that the stillbirth rate was highest for the Italians and lowest for the Irish; the rate for the Lithuanians was only about one-half that of the Italians.

Attendant at birth.—Physicians attended 95.7 per cent of the births to native mothers and but 52.2 per cent of those to foreign-born mothers. The foreign-born group had 43.4 per cent attended by midwives, but only 3.8 per cent of the native births were so attended. No supervision by public or private authorities was exercised over midwives except that a registered license to practice was required; yet one-third of the births in this study attended by midwives only, were attended by unlicensed practitioners.

Feeding.—A large percentage of artificially fed babies was accompanied by a high mortality rate for infants of foreign-born mothers, but the native group maintained a low infant mortality rate in spite of a high percentage of artificial feeding.

Although the native group, in accordance with general findings, substituted artificial for maternal feeding earlier than the foreign born, consideration of the nationalities composing the latter group showed the Lithuanians with the highest percentage of early artificial feeding.

Income.—Waterbury has contributed to the rapidly accumulating evidence which establishes the coincidence of poverty and a high infant mortality rate. For the families in which the fathers earned less than $450 during the year following the birth of the baby, 153 out of every 1,000 babies born alive died before reaching their first birthday. Although the rate decreased as the father's earnings increased, it did not drop below 100 until these earnings exceeded $850.

Nearly one-third (30.6 per cent) of the fathers of infants having foreign-born mothers earned less than $450 during the year under

consideration and only 7.4 per cent of them earned $1,050 or more. On the other hand in the native group there were only 5.6 per cent earning less than $450, while 30.4 per cent of them earned $1, 050 or more. In connection with these figures a consideration of the fact that the native families were much smaller than the foreign born brings into prominence the tremendous financial disadvantage under which the foreign-born population lives and labors.

Conclusion.—Waterbury's infant mortality rate of 122.7 is largely the result of deaths from preventable causes; practically all the deaths from gastric and intestinal diseases, a large proportion of the deaths peculiar to early infancy, and many of the deaths from respiratory and epidemic diseases can be prevented.

The work of prevention should begin with complete birth registration, which involves securing the passage and enforcement of a law requiring more immediate registration of births. In addition a system must be evolved to provide suitable obstetrical care for every mother.

Stillbirths and the large number of deaths in the early weeks of life suggest the need for complete prenatal care, involving obstetrical clinics where frequent examinations of the mothers are made during pregnancy, nurses to make prenatal visits, and, equally important, thorough education of the prospective mother in the proper care of herself during pregnancy and at the time of confinement.

For those who are unable to pay for proper medical and nursing supervision equally skilled service must be provided at reduced rates or given free.

Gastric and intestinal diseases are largely a matter of improper care, primarily in respect to feeding. Obviously, education of the mother is the most effective weapon against a high infant death rate from this group of diseases. Infant-welfare stations where well babies are kept well by means of periodical visits to the station for examination; instruction of the mother by a physician who is a specialist in infant care; public-health nurses who visit the homes to show the mother how to care for the infants, teach home modification of milk, and in other ways direct the mothers how to carry out the physician's orders—these are the important factors in a program for postnatal or "well baby" care.

For the sick babies of the families unable to afford private medical care there must be dispensaries or clinics presided over by specialists in the various infants' diseases. Visits to these clinics should be supplemented by the home-nursing visits, in order to insure execution of the physician's orders.

Many difficulties attend the carrying on of such work even after the plans have been perfected and the machinery for executing them

has been set in motion. For instance, the Lithuanians and Italians have adhered largely to their native language and customs, 75 per cent of the Italian mothers and 92 per cent of the Lithuanian being unable to speak English. Furthermore, 39 per cent of the foreign-born mothers were illiterate, 53 per cent of the Italians and 62 per cent of the Lithuanians being unable to read or write in any language. Their illiteracy and inability to speak English are great barriers to their instruction in matters of hygiene. Obviously, a great deal of personal work will be necessary if these mothers, who contribute the largest number of children to Waterbury and also the greatest number of prenatal and infant deaths, are to learn how to bear and rear normal children with the minimum of discomfort and injury to themselves.

Low earnings of the fathers were accompanied in Waterbury by a high infant mortality rate. Low earnings also had a close relationship with many of the factors which unite in causing undesirable living conditions. Poverty forces the family to live in the least desirable sections of the city, where lot congestion and room overcrowding are most frequent, and where the disrepair of the buildings is a constant menace to the health of the entire family. Waterbury had within its borders several definite plague spots, where almost every type of housing evil could be found, such as dilapidated one-family frame dwellings, ramshackle tenements in which overcrowding existed to a serious extent, alley houses, generally insanitary yards, with infrequent garbage and refuse collections. The problem of room congestion was complicated by the custom of keeping lodgers, nearly one-fourth of the mothers interviewed adding to the family income in this way.

At the time of the inquiry certain conditions generally associated with a high infant mortality rate did not exist in Waterbury, e. g., extensive employment of mothers outside the home, a large negro population, and a high per cent of illegitimacy.

Infant deaths in Waterbury are largely preventable, a fact which should encourage an immediate campaign to reduce the infant mortality rate to a minimum. Such a campaign should recognize two important principles of health work: (1) Specific preventive measures, such as the establishment of infant-welfare stations, will lessen and prevent infant illness as well as infant deaths; (2) general preventive measures such as those under the jurisdiction of the local health department will lessen and prevent sickness and deaths among all classes of the population. Public opinion must be educated to demand from all members of the community the cooperative action necessary for the eradication of the conditions which are responsible for the deaths of its youngest members.

APPENDIX A.

INFANT-WELFARE WORK, 1914–1916.

Since the close of the inquiry upon which this report is based the visiting nurses association has increased its work for infants, as shown in the following extracts from the reports of that organization for 1915 and 1916:

In September [1914] it was decided to divide the city into seven districts and let each nurse care for all the sick, adults or infants, in her district and as far as possible visit every baby born in it. The names and addresses of these babies are obtained from the birth-registration list at the city clerk's office. The mothers are visited and advised, and in many cases are given the excellent pamphlet, The Baby, furnished by the Metropolitan Life Insurance Co., printed in English, Italian, French, German, Polish, and Yiddish.

To make this work among babies more effective, milk stations in the more densely populated parts of the city are needed. The function of these stations is:

To advise mothers in regard to the care and feeding of infants.

To encourage breast feeding.

Where artificial feeding is necessary, to supply milk of good quality, at perhaps a lowered cost to persons unable to pay full market value.

By education in the preventive measures of child hygiene to prevent the diseases of infancy and childhood caused and influenced by errors in diet.

To serve as centers for all work relative to the welfare of infants.

Closely following along this line of postnatal work comes the need of prenatal work, which is the care and instruction of expectant mothers.

During the year 1916, 1,999 babies received care. In all, 6,994 visits were paid these babies.

The most important preventive work accomplished during this year was the opening of a baby-welfare station in June, 1916, in the heart of the Lithuanian section. Six physicians volunteered their services, so that there was a doctor at the station daily during the summer months. Later it was found necessary to have the doctors present on only two days each week.

Every baby brought to the station is weighed and given a thorough physical examination. The mother is instructed in proper feeding of the baby and if such feeding is artificial she buys pasteurized milk on sale at the station.

In regard to the work of this station the superintendent says in her report:

It is decidedly uphill work, as many superstitions and customs of the old country have to be overcome by persuasion and persistence, and it requires endless optimism

on the part of the nurse. Out of 282 babies brought to the station we had 27 deaths, but most of these deaths occurred among babies brought to us in a dying condition.

In connection with this work we are starting Little Mothers Leagues—classes where young girls, who often have the care of their younger brothers and sisters, are taught the care of babies, personal hygiene, and American standards of living. They, understanding English, take the information home to their parents, who are not always able to grasp what is taught them by the nurse on the subject of their babies. We also hope so to rouse the interest of these women that we can form mothers' classes.

The urgent need of more stations throughout the city can not be too strongly stated.

APPENDIX B.

SELECTED DISTRICTS IN INTENSIVE HOUSING STUDY.

District I.—Each district was so far as possible a unit in type of housing. District I was perhaps the most homogeneous. It consisted of French, Anne, and Gilbert Streets, which cross each other, forming a small, swastika-like knot wherein existed a type of housing distinct from that of the prosperous neighborhood by which it was surrounded. In this district the houses were small, old, dilapidated, and uniformly of frame construction. Of the 24 houses, 15 were two, and 9 were three stories high. Fourteen of the 24 were one or two family cottages and only two contained as many as six apartments. With the exception of three one-family cottages occupied by their owners, who kept them in fair condition, and one newer two-family cottage, all the houses, at the time the investigation was made, were in poor repair and several of them were in a state of utter dilapidation, some sagging as much as 6 inches along an entire side. In several instances both inside and outside stairways were so broken and worn as to be dangerous. The plaster on walls and ceilings was almost uniformly broken and dirty; floors were warped and sagging; the partition walls, ceilings, and floors were so thin and worn that in a number of cases water poured through the ceiling of the first floor apartment when the floor above was scrubbed, and in several cases the roofs leaked copiously in rainy weather.

In a very large number of cases the plumbing was seriously out of order, as the following instances illustrate: Eight toilets in the district did not flush at all when seen; one, the family reported, had not flushed for two months; in one house on Gilbert Street the toilet in the second-floor apartment leaked through the floor into the sink located just below; in another house on the same street the water leaked through from the second-floor sink to the sink below, and in this house, as in a number of others, the family upstairs was unable to get water when the family downstairs was using it—sometimes "not enough to get the meals" and often not enough to flush the toilet. In one house water from the sewer had backed up in the tubs to the depth of 3 or 4 inches.

The dilapidation of the houses made them a prey not only to dampness resulting from faulty plumbing but also to dampness from outside, due to their position on the hill. Along French and Gilbert

Streets the land slopes up gradually from West Main to the bend where French Street turns at right angles to itself and runs into Gilbert Street. Here, along the north side of French Street, the land rises abruptly in a hill against which the houses on this side of the street are built. Garbage and rubbish rolled down the side of the hill, collecting in a heap which partly buried the first-story windows. Water drained down the hill into the cellars and first-floor apartments, resulting in dampness throughout the house; in the cellars the dirt floors were damp even in the driest weather.

The streets reflected the disrepair of the houses. They were as narrow as alleys and along French Street and part of Gilbert and Anne there were no sidewalks, while the roadway was peppered with numerous holes which were transformed into pools in wet weather. In dry weather a thick deposit of dirt blew down the hill, carrying with it the rubbish which was so conspicuous in this entire section.

The district was largely Italian, having 32 Italian households, 3 native white, 4 native black, 7 Irish, 2 English, and 1 German family.[1]

District II.—In District II (Railroad Hill) the Lithuanians, Italians, and Irish predominated, the Lithuanians with 46 families forming 36.5 per cent of the total households, the Italians and Irish with 36 and 33 families, respectively, contributing 28.6 and 26.2 per cent. In addition to these there were 7 native white, 2 German, and 2 Polish families. The Irish were the earliest inhabitants of the neighborhood and had drifted to the lower or south end of the hill, where they lived in one and two family cottages generally owned by the occupants and kept in much better condition than most of the houses farther north which were rented to Italians and Lithuanians.

The houses were of much the same character as those in District I—frame, small, old, and in poor repair. Fifty-one out of the total 56 were one or two stories high, and 38 or 67.9 per cent contained one or two apartments, while only two had as many as six apartments. Aside from 11 cottages owned by Irish families as already described, the houses were in as poor repair as those in District I, with broken stairways and plaster, leaking roofs, and faulty plumbing. In one cottage where a widow with four children lived rent free because the landlord "would only have to pull the place down" if she moved out, every step in the stairway was broken. Roofs, floors, and ceilings were mildewed and sagging, threatening instant collapse. In another dilapidated two-room hut the door was entirely gone and a curtain screen had been put up as a makeshift.

Railroad Hill is a long, narrow, slightly winding ridge running north and south between the Naugatuck River on the east and the New York, New Haven & Hartford Railroad tracks on the lower land to the west. The city sewer is laid along the hill for about

[1] General Table 43.

one-quarter of its length from the north, and beyond that is carried along the Naugatuck Valley beside the hill. The sinks and water-closets in most of the houses at the northern end of the hill drained into this city sewer; but the greater number on the hill were not connected with the sewer, and the waste pipes from the sinks poured the soapy, greasy water into the yard. Here it was sometimes dispersed over the surface, sinking into the ground and making the entire yard damp and muddy, and sometimes was carried in a stream down the hill into the garden or to the swampy land by the river. This situation was the more serious since there were in this district six basement dwellings, one-half of the number found in all the districts canvassed. It was particularly objectionable in such cases as that of the small hut without a door, already described. This was on lower land than the large tenement next door, the drainage from which poured down into the lower yard, making it impossible at times for the occupants of the small cottage to reach their toilet in the yard without wading in sewage to their ankles.

The worst feature of the lack of sewer connections is the yard dry privies. During the summer months these privies became especially offensive, the stench often being strong enough to reach a person walking along the street. Only 2 of the privies were in what could be termed fair condition, moderately clean and with comparatively little odor; 6 were filthy and 17 others were in need of immediate cleaning. In 13 instances the compartments had broken through behind and the contents were overflowing down the hillsides. In one particularly offensive case, where 6 families including 32 persons used the same privy vault, the overflow had formed an open pool, which served as both breeding and feeding place for countless flies which covered its surface. One privy was so bad that two families had moved away one after the other and the family which remained used the bushes rather than go near the toilet. On the west side of the hill these toilets drained into the vegetable gardens of the Italian families and on the east side into the river, which is very shallow at this point and used by the children for wading in summer. The hill at its southern end is somewhat farther from the stream, and into the intervening swampy land privies and waste pipes drained. The water stood here in stagnant, evil-smelling pools. An attempt to find out how often the privies were emptied or cleaned was fruitless, as only two families could remember a time when they were emptied. To add to the discomfort the compartments were generally out of repair and two of the seats were so broken as to prohibit their use.

District III.—Like District I, District III showed a similar small, old, dilapidated cottage type of house. District III, including Brown Street and North Elm Street between Water and Cherry, while still

having a fair proportion of houses of this type, is being gradually invaded by the larger brick tenement. In this district 17 out of 31 houses were two stories high, 2 were four stories, and 1 five. Seventeen houses were one or two family cottages while 2 contained five apartments, 4 contained six, 1 eight, 1 twelve, and 1 thirteen.

Italians and Jews predominated in this district, forming 33.6 per cent and 29.9 per cent, respectively, of the total 107 households. Polish followed with 17 families, and native white with 10, while Russian, Lithuanian, German, and Irish totaled 12 families.

Six of the houses in this district were found to be in good or fair condition, others being in various degrees of disrepair. Here were the same dirty, broken plaster, warped floors, splintered woodwork, and steep, narrow, broken stairways as in Districts I and II, and in some instances the entrance steps were entirely destroyed. Thirteen houses were noted as particularly damp; in one of these the mother reported that water from the street drained into the cellar where the toilet was located, making it impossible to keep it in a sanitary condition.

In one building the tenants reported three cases of tuberculosis, one of pneumonia, and one of bronchial asthma, and an 8-months-old baby in one family was in the hospital with pneumonia at the time the house was visited. In an apartment on the third floor was a 9-year-old boy with incipient tuberculosis and a 17-year-old girl said to be dying of bronchial asthma. In an adjoining apartment on the same floor a baby had recently died from tuberculosis; the husband of the baby's older sister, living in the same apartment of three rooms, was in an advanced stage of tuberculosis and he and his wife slept in one of the small bedrooms. The remainder of the baby's family, father, mother, and two children, fearing infection, were crowded into the remaining bedroom, containing only 880 cubic feet of air space, although the legal minimum requirement for the four persons was 1,600 cubic feet. This building was new, being only three or four years old, of brick, and in fair repair. It was five stories high, contained 13 families, and seemed fairly well planned as to light and ventilation. The toilet of every apartment in the building opened upon the same shaft, making every family afraid to open the window in the toilet for "fear" of contagion from the next apartment.

District IV.—While the large tenement type of dwelling was present in only three cases in District III it was the rule in District IV, which included Bank Street, beginning just south of the lodging-house, stag-hotel, and business-house belt, reaching half a block south of Grand Street, south the length of Bank Street, across the river to Washington Avenue. Below this the character of the houses changed from the large brick tenement to smaller frame houses in fairly good con-

dition, with the exception of two large brick buildings on the corner of Bank and Porter Streets, a block farther south, which were included in the study because they were in accordance with the Bank Street type.

District IV was the largest district canvassed, having a population of 1,917[1] persons of whom 773 or 40.3 per cent were adult members of the families, 592 or 30.9 per cent adult lodgers, 522 or 27.2 per cent children under 12, and 30 for whom no information was secured, proportions corresponding closely to those of the total population of the six districts combined. Italians and Lithuanians predominated in District IV, the Italians having 148 or 52.5 per cent of the total number of households and the Lithuanians, who concentrated in a colony south of the river, having 115 or 40.8 per cent. All other nationalities, native white, Irish, French Canadian, Jewish, English, and Swedish combined, totaled 18 families or 6.4 per cent of the entire number.

Bank Street is essentially a business street. It is lined with brick buildings containing dwellings above the stores. Twenty-one of the houses included in this district were two stories, 21 three stories, and 20 were four stories in height. Twenty-one houses contained one or two apartments, 25 had five or more, and 9 had ten or more, 1 having seventeen apartments and 1 eighteen. The special housing defect of this district was the large proportion of gloomy and poorly ventilated rooms. This condition inevitably accompanies this prevalence of large block tenements built with a very narrow passage between buildings or none at all. The defect is purely structural and is to be found irrespective of the state of repair. Indeed, on Bank Street a number of tenement houses maintained in fair condition contained bedrooms having no windows whatsoever or windows opening only into other rooms or hallways. When combined with bad sanitation and dilapidation this type of building introduces the worst possible housing conditions.

Many such buildings were found in the small section of Bank Street known as Wards Flats, just north of the river and just south of the Bank Street factory belt. Here were four buildings, one of 8 tenements, one of 14, and one of 17, and one a rear 5-family house. In these four buildings lived 230 people. The buildings were very old and dilapidated, with dank, clammy, filthy walls, dark, narrow halls and stairways, and broken woodwork. Plaster was breaking off the walls and ceilings in great pieces. The head of one household said that the pipes had been so rusted and corroded that no water would run, and he had finally secured new pipes at his own expense. The waste pipes from the 17-family tenement drained into the river

[1] General Table 44.

which flows along its side. A number of the toilets were in the last stages of disrepair. One closet was leaking so badly that water stood from two to three inches deep on the floor and one could not enter the compartment. One toilet, used by 2 families including 14 persons, had not flushed for four days and was full of refuse. Another, badly corroded, flushing inadequately, leaking all over the floor, and fitted with an old broken board for a seat, was built under the stairway, where it was impossible to stand upright. Another ill-smelling toilet with seat and floor broken had been patched by the tenant. The bowl was corroded and it had no chain or any flushing apparatus left, but was the only accommodation for 2 families, including 20 persons. In one apartment a toilet, corroded and flushing inadequately, was not even placed in a separate compartment, but was located in the hallway, shut off from the rest of the apartment by only a curtain stretched in front of it. In the four buildings just described 15 bedrooms had no windows at all or windows opening only into other inadequately ventilated rooms, while 11 had small dark glass windows opening on a covered shaft closed to the outside air.

Another flagrant example of uncontrolled housing, diverging from the Bank Street tenement type but compatible with the character of the neighborhood as a business center, was the old frame hotel on the corner of Bank and Meadow Streets, converted into a tenement house.[1] This was visited a number of times through a period of five months. At the time of the first visit only 3 families lived here; later it was occupied by 6 families, but at no time was the house fully occupied. The occupied apartments were unfit for habitation. They had sagging ceilings, broken, filthy plaster and woodwork, and were fitted with thin partitions and faulty, makeshift plumbing. It was, however, the condition of the unoccupied apartments and of the toilets which constituted the greatest menace to health. Only two toilets were found which flushed at all and they did not flush adequately. At the end of each of the two wings on the second floor were toilets not flushing and choked to the top of the bowl. These and the unoccupied rooms were unlocked and open to the promiscuous use of any tramp or passer-by. As a result the floors of the rooms were vile with refuse of months' accumulation. Before the end of the investigation much of the filth had been cleaned out of these rooms and many of the doors painted and fastened, but at no time during the 5 months of the investigation in the city were the toilets described either properly cleaned or put in repair.

One of the babies scheduled in the infant mortality investigation lived in this house and, because his mother went out to work, was left all day to play about in these unoccupied rooms in the care of two

[1] This building has since been razed.

little girls, 8 and 5 years of age. Not only the menace to health of this insanitary condition should be emphasized, but the social danger of giving any vagrant free access to those empty rooms where little girls played unprotected, should be recognized.

District V.—District V, which adjoins the northern part of the Bank Street district, extended between Bank, South Main, and Grand Streets and included Canal, Chatfield, two short alleyways known as Rear South Main, and the portion of Meadow Street lying between Bank and South Main. Italians, with 156 families, constituted 97.5 per cent of the total number. There were but 4 other families, 1 Irish, 1 Jewish, and 2 native black. This district was second in size, with a population of 1,268 persons. Of these, 484 or 38.2 per cent were adult lodgers and 357 or 28.2 per cent children under 12 years of age.

In this district, containing both the small frame cottage and the larger brick tenement typical of the greater part of Bank Street, were found the bad features common to both types of buildings. The large brick tenement on Bank Street, especially in the more prosperous portion of the Lithuanian colony south of the river, was sometimes in good repair. In District V it was uniformly old and in very bad repair. In this district also one building was reported which contained 19 apartments and was a modified dumb-bell type. In this four-story building there were 6 apartments on each floor except the first, which had 2 apartments behind the store; and the second, where 2 apartments had been combined to make 1 large apartment for the owner. There were 2 bedrooms on each floor which had no windows whatsoever, but which ventilated over a partition into another bedroom which in turn opened upon a narrow lot line court. Four hall toilets on each floor opened on narrow inadequate shafts and were very offensive.

District VI.—Close to District V is Rushton Place, designated District VI, which is very small but contained several interesting features. Here were 7 Polish families, 7 French Canadian, 4 native white, and 1 Irish.

Rushton Place is entered from South Main Street by an alleyway just south of Meadow Street. In the center of the place was a large oblong plot of vacant land circled by a narrow dirt road. At one end was a 2-family frame cottage, at the other an 8-family tenement, also frame and almost empty. Facing on the plot along the south side was a long, low, frame, 16-family tenement. The houses were built by the same man, on the same plan, and were old and in very bad repair. The 2-family cottage was in better condition than the other houses and had two toilets inside the house. The 8-family house had two yard closets at each end of the building, one not flushing at all and the other in poor condition. For the 16-family house were four yard closets in a shed with four compartments. These were used

GENERAL TABLES.

TABLE 1.—*All known issues*[a] *during selected year, infant deaths, infant mortality rate, and per cent of stillbirths and miscarriages, according to nationality of mother and registration status of birth.*

Registration status of birth and nationality of mother.	Total issues.	Live births.	Infant deaths.	Infant mortality rate.[b]	Stillbirths and miscarriages.[c]	
					Number.	Per cent of total issues.[b]
Registered and unregistered	2,654	2,568	311	121.1	86	3.2
Nativity of mother not reported	92	90	3	.....	2	.....
Native mothers	882	855	84	98.2	27	3.1
Foreign-born mothers	1,680	1,623	224	138.0	57	3.4
Italian	723	697	78	111.9	26	3.6
Lithuanian	282	273	56	205.1	9	3.2
Irish	216	209	38	181.8	7	3.2
All other	411	399	47	117.8	12	2.9
Not reported	48	45	5	.....	3	.....
Registered	2,323	2,239	259	115.7	84	3.6
Nativity of mother not reported	6	4	.....	.....	2	.....
Native mothers	860	834	79	94.7	26	3.0
Foreign-born mothers	1,457	1,401	180	128.5	56	3.8
Italian	700	675	71	105.2	25	3.6
Lithuanian	111	102	26	254.9	9	8.1
Irish	210	203	37	182.3	7	3.3
All other	393	381	46	120.7	12	3.1
Not reported	43	40	.....	.....	3	.....
Unregistered	331	329	52	158.1	2	.6
Nativity of mother not reported	86	86	3	.....	.....	.....
Native mothers	22	21	5	.....	1	.....
Foreign-born mothers	223	222	44	198.2	1	.4
Italian	23	22	7	.....	1	.....
Lithuanian	171	171	30	175.4	.....	.....
Irish	6	6	1	.....	.....	.....
All other	18	18	1	.....	.....	.....
Not reported	5	5	5	.....	.....	.....

[a] 120 additional records were secured of infants said to have been born in Waterbury during the selected year. 69 of the 120 proved to be of infants not born during the year and 51 of infants born outside of Waterbury.

[b] Not shown where base is less than 100.

[c] Detailed study confined to live births and to stillbirths that had resulted from 7 or more months' gestation.

TABLE 2.—*Births during selected year, infant deaths, infant mortality rate, and per cent of stillbirths, according to nationality of mother.*

Nationality of mother.	Total births.	Live births.	Infant deaths.	Infant mortality rate.[a]	Stillbirths.	
					Number.	Per cent of total births.[a]
All mothers	2,197	2,144	263	122.7	53	2.4
Native mothers	718	705	69	97.9	13	1.8
Foreign-born mothers	1,479	1,439	194	134.8	40	2.7
Italian	651	628	69	109.9	23	3.5
Lithuanian	267	260	54	207.7	7	2.6
Irish	200	195	36	184.6	5	2.5
Slavic[b]	91	89	11	.....	2	.....
Jewish	61	60	3	.....	1	.....
German	58	57	5	.....	1	.....
French Canadian	56	56	3	.....	.....	.....
English, Scotch, and Welsh[c]	40	40	8	.....	.....	.....
All other[d]	55	54	5	.....	1	.....

[a] Not shown where base is less than 100.
[b] Including 65 Polish, 20 Russian, 2 Slovak, 2 Bohemian, 1 Serbo-Croatian, and 1 Ruthenian.
[c] Including 18 English, 21 Scotch, and 1 Welsh.
[d] Including 29 Scandinavian, 7 English Canadian, 6 French, 5 Magyar, 3 Syrian, 2 Greek, 1 Dutch, 1 Spanish, and 1 West Indian Black.

TABLE 3.—*Births during selected year, infant deaths, infant mortality rate, and per cent of stillbirths, by ward of residence.*

Ward of residence.	Total births.	Live births.	Infant deaths.	Infant mortality rate.	Stillbirths.	
					Number.	Per cent of total births.
The city	2,197	2,144	263	122.7	53	2.4
Ward:						
1	460	451	63	139.7	9	2.0
2	336	326	23	70.6	10	3.0
3	493	482	51	105.8	11	2.2
4	585	573	86	150.1	12	2.1
5	323	312	40	128.2	11	3.4

TABLE 4.—*Births during selected year, according to nationality of mother and nativity of father.*

Nationality of mother and nativity of father.	Births during selected year.
All mothers	2,197
Mother's nationality same as father's	1,911
Both native	556
Both of same foreign nationality	1,355
Mother's nationality different from father's	284
One parent native, other foreign	254
Mother native, father foreign	160
Mother foreign, father native	94
Mother's nationality:	
Irish	31
English, Scotch, and Welsh	16
French Canadian	16
German	12
Jewish	2
Italian	1
Lithuanian	1
All other	15
Parents of different foreign nationalities	30
Mother's nationality:	
English, Scotch, and Welsh	8
German	7
Irish	7
French Canadian	1
All other	7
Mother native, father's nationality not reported	2

TABLE 5.—*Number and per cent distribution of deaths among infants born in Waterbury during selected year and of infant deaths in the registration area in 1914, by cause of death.*

Abridged International List No.[a]	Detailed International List No.[a]	Cause of death.[b]	Infant deaths in— Waterbury. Number.	Waterbury. Per cent distribution.	Registration area. Number.	Registration area. Per cent distribution.
		All causes	263	100.0	155,075	100.0
		Gastric and intestinal diseases[c]	88	33.5	37,736	24.3
24	102,103	Diseases of the stomach	4	1.5	2,556	1.6
25	104	Diarrhea and enteritis	84	31.9	35,180	22.7
		Respiratory diseases[d]	39	14.8	24,036	15.5
20	89	Acute bronchitis	8	3.0	3,458	2.2
Part of 23	91	Broncho-pneumonia	23	8.7	13,653	8.8
22	92	Pneumonia	8	3.0	6,925	4.5
Part of 33	150	Malformations	10	3.8	9,663	6.2
		Early infancy	83	31.6	52,535	33.9
Part of 33	151(1)	Premature birth	34	12.9	28,270	18.2
Part of 33 Part of 37	151(2), 152(2), 153	Congenital debility	36	13.7	18,549	12.0
Part of 37	152(1)	Injuries at birth	13	4.9	5,716	3.7
		Epidemic diseases[e]	18	6.8	12,714	8.2
5	6	Measles	1	.4	1,041	.7
6	7	Scarlet fever			264	.1
7	8	Whooping cough	4	1.5	3,899	2.5
8	9	Diphtheria and croup	1	.4	977	.6
9	10	Influenza	2	.8	481	.3
Part of 12	14	Dysentery			573	.4
Part of 12	18	Erysipelas	2	.8	740	.5
Part of 37	24	Tetanus			368	.2
13	28, 29	Tuberculosis of the lungs	1	.4	883	.6
14	30	Tuberculous meningitis	4	1.5	1,118	.7
15	31, 32, 33, 34, 35	Other forms of tuberculosis			448	.3
Part of 37	37	Syphilis	3	1.1	1,982	1.3
35	155 to 186	External causes	1	.4	1,926	1.2
38	187, 188, 189	Diseases ill defined or unknown	4	1.5	2,964	1.9
		All other causes	20	7.6	13,501	8.7
17	61	Meningitis	3	1.1	1,659	1.1
Part of 37	71	Convulsions	5	1.9	2,950	1.9
19	79	Organic diseases of the heart			596	.4
		Other	12	4.6	8,296	5.3

[a] The numbers indicate the classification in the abridged and the detailed lists, respectively, of the Manual of the International List of Causes of Death.

[b] The causes of death included in this list are those used by the United States Bureau of the Census (see Mortality Statistics, 1914, p. 660) in classifying the deaths of infants under 1 year. They are those causes of death or groups of causes which are most important at this age. The numbers of the detailed and abridged International Lists will facilitate their identification. In order to make discussion of the figures easier, these causes of death have been grouped in 8 main groups.

[c] The term "gastric and intestinal diseases" as used in the tables and discussion includes, as above shown, only the diseases of this type which are most important among infants, i. e., diseases of the stomach, diarrhea, and enteritis. It does not include all "diseases of the digestive system" as classified under this heading according to the detailed International List.

[d] "Respiratory diseases" as used in the tables and discussion similarly includes only those of the respiratory diseases which are most important among infants, i. e., acute bronchitis, broncho-pneumonia, and pneumonia. It does not include all "diseases of the respiratory system" as classified under this heading according to the detailed International List.

[e] "Epidemic diseases" as used in the tables and discussion includes only those of this group which are most important among infants.

TABLE 6.—*Number and per cent distribution of deaths among infants born during selected year to mothers of specified nativity, and infant mortality rates, by cause of death.*

Cause of death.	Deaths among infants born during selected year to—								
	All mothers.			Native mothers.			Foreign-born mothers.		
	Number.	Infant mortality rate.	Per cent distribution.	Number.	Infant mortality rate.	Per cent distribution.	Number.	Infant mortality rate.	Per cent distribution.
All causes	263	122.7	100.0	69	97.9	100.0	194	134.8	100.0
Gastric and intestinal diseases	88	41.0	33.5	18	25.5	26.1	70	48.6	36.1
Respiratory diseases	39	18.2	14.8	10	14.2	14.5	29	20.2	14.9
Malformations	10	4.7	3.8	4	5.7	5.8	6	4.2	3.1
Early infancy	83	38.7	31.6	23	32.6	33.3	60	41.7	30.9
Premature birth	34	15.9	12.9	11	15.6	15.9	23	16.0	11.9
Congenital debility	36	16.8	13.7	7	9.9	10.1	29	20.2	14.9
Injuries at birth	13	6.1	4.9	5	7.1	7.2	8	5.6	4.1
Epidemic diseases	18	8.4	6.8	7	9.9	10.1	11	7.6	5.7
External causes	1	.5	.4	.....	.....	.....	1	.7	.5
Diseases ill defined or unknown	4	1.9	1.5	1	1.4	1.4	3	2.1	1.5
All other causes	20	9.3	7.6	6	8.5	8.7	14	9.7	7.2

TABLE 7.—*Deaths among infants born during selected year occurring in specified calendar month, by cause of death.*

Cause of death.	Deaths among infants born during selected year.												
	Total.	Occurring in specified calendar month.											
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
All causes	263	24	20	22	22	22	15	25	28	44	15	10	16
Gastric and intestinal diseases	88	2	2	2	3	4	8	12	18	26	7	3	1
Respiratory diseases	39	7	5	6	5	6	1	....	2	2	2	1	2
Malformations	10	1	....	1	1	1	1	1	2	1	....	....	1
Early infancy	83	8	6	8	5	9	4	8	3	14	5	5	8
Premature birth	34	4	2	5	4	3	....	1	2	7	3	1	2
Congenital debility	36	3	3	2	1	3	2	6	....	7	2	3	4
Injuries at birth	13	1	1	1	....	3	2	1	1	....	....	1	2
Epidemic diseases	18	5	1	2	4	1	....	2	2	....	1	....	....
External causes	1	....	1	....	....	....	....	....	....	....	....	....	....
Diseases ill defined or unknown	4	....	....	....	....	1	1	1	....	1	....	....	....
All other causes	20	1	5	3	4	....	....	1	1	....	....	1	4

TABLE 8.—*Deaths among infants born during selected year occurring in specified month of life, by cause of death.*

Cause of death.	Total deaths.	Deaths in specified month of life.													
		First.			Second.	Third.	Fourth.	Fifth.	Sixth.	Seventh.	Eighth.	Ninth.	Tenth.	Eleventh.	Twelfth.
		Total.	Under 2 weeks.	2 weeks but under 1 month.											
All causes	263	107	88	19	28	18	16	16	19	7	13	13	13	4	9
Gastric and intestinal diseases	88	14	8	6	11	10	9	8	8	3	5	8	7	2	3
Respiratory diseases	39	7	2	5	4	1	4	3	5	2	5	3	3	1	1
Malformations	10	6	6	....	....	1	....	....	1	....	....	....	2	....	....
Early infancy	83	69	64	5	6	2	1	1	2	1	....	....	....	....	1
Premature birth	34	34	34	....	....	....	....	....	....	....	....	....	....	....	....
Congenital debility	36	23	18	5	5	2	1	1	2	1	....	....	....	....	1
Injuries at birth	13	12	12	....	1	....	....	....	....	....	....	....	....	....	....
Epidemic diseases	18	3	1	2	3	2	1	2	2	....	2	....	1	1	1
External causes	1	1	1	....	....	....	....	....	....	....	....	....	....	....	....
Diseases ill defined or unknown	4	....	....	....	2	1	....	....	1	....	....	....	....	....	....
All other causes	20	7	6	1	2	1	1	2	....	1	1	2	....	....	3

TABLE 9.—*Births from all pregnancies, infant deaths, infant mortality rate, and per cent of stillbirths, according to order of pregnancy and age of mother.*

Order of pregnancy and age of mother.	Total births.	Live births.	Infant deaths.	Infant mortality rate.[a]	Stillbirths.	
					Number.	Per cent of total births.[a]
All pregnancies, all ages	7,772	7,507	987	131.5	265	3.4
Under 20	539	518	92	177.6	21	3.9
20 to 24	2,458	2,368	300	126.7	90	3.7
25 to 29	2,526	2,451	297	121.2	75	3.0
30 to 34	1,466	1,418	184	129.8	48	3.3
35 to 39	641	613	87	141.9	28	4.4
40 and over	133	131	21	160.3	2	1.5
Not reported	9	8	6	....	1	....
First pregnancy, all ages	2,073	1,994	243	121.9	79	3.8
Under 20	403	388	65	167.5	15	3.7
20 to 24	1,084	1,034	121	117.0	50	4.6
25 to 29	459	446	37	83.0	13	2.8
30 to 34	106	105	16	152.4	1	.9
35 to 39	18	18	3	....	....	....
40 and over	1	1	1	....	....	....
Not reported	2	2	....	....	....	....
Second pregnancy, all ages	1,595	1,547	174	112.5	48	3.0
Under 20	112	106	20	188.7	6	5.4
20 to 24	736	718	83	115.6	18	2.4
25 to 29	549	531	53	99.8	18	3.3
30 to 34	157	152	16	105.3	5	3.2
35 to 39	37	37	1	....	....	....
40 and over	2	2	....	....	....	....
Not reported	2	1	1	....	1	....

[a] Not shown where base is less than 100.

TABLE 9.—*Births from all pregnancies, infant deaths, infant mortality rate, and per cent of stillbirths, according to order of pregnancy and age of mother*—Continued.

Order of pregnancy and age of mother.	Total births.	Live births.	Infant deaths.	Infant mortality rate.[a]	Stillbirths.	
					Number.	Per cent of total births.[a]
Third pregnancy, all ages	1,215	1,171	151	128.9	44	3.6
Under 20	23	23	7			
20 to 24	397	382	57	149.2	15	3.8
25 to 29	552	536	61	113.8	16	2.9
30 to 34	191	180	18	100.0	11	5.8
35 to 39	45	43	5		2	
40 and over	6	6	2			
Not reported	1	1	1			
Fourth pregnancy, all ages	893	870	109	125.3	23	2.6
Under 20	1	1				
20 to 24	173	170	27	158.8	3	1.7
25 to 29	418	407	49	120.4	11	2.6
30 to 34	232	227	22	96.9	5	2.2
35 to 39	63	59	10		4	
40 and over	5	5				
Not reported	1	1	1			
Fifth pregnancy, all ages	646	625	98	156.8	21	3.3
20 to 24	48	44	9		4	
25 to 29	295	288	41	142.4	7	2.4
30 to 34	226	219	37	168.9	7	3.1
35 to 39	68	65	8		3	
40 and over	8	8	2			
Not reported	1	1	1			
Sixth pregnancy, all ages	443	426	72	169.0	17	3.8
20 to 24	17	17	2			
25 to 29	147	141	30	212.8	6	4.1
30 to 34	199	192	24	125.0	7	3.5
35 to 39	73	70	15		3	
40 and over	6	5			1	
Not reported	1	1	1			
Seventh pregnancy, all ages	331	316	46	145.6	15	4.5
20 to 24	2	2	1			
25 to 29	69	66	14		3	
30 to 34	156	150	24	160.0	6	3.8
35 to 39	90	84	4		6	
40 and over	13	13	2			
Not reported	1	1	1			
Eighth pregnancy, all ages	218	211	33	156.4	7	3.2
20 to 24	1	1				
25 to 29	23	22	6		1	
30 to 34	101	98	13		3	3.0
35 to 39	74	72	10		2	
40 and over	19	18	4		1	
Ninth pregnancy, all ages	147	142	28	197.2	5	3.4
25 to 29	7	7	4			
30 to 34	60	58	10		2	
35 to 39	66	63	11		3	
40 and over	14	14	3			
Tenth pregnancy, all ages	97	93	14		4	
25 to 29	6	6	2			
30 to 34	26	25	2		1	
35 to 39	49	46	8		3	
40 and over	16	16	2			
Eleventh pregnancy, all ages	49	47	4		2	
25 to 29	1	1				
30 to 34	8	8	1			
35 to 39	28	26	3		2	
40 and over	12	12				

[a] Not shown where base is less than 100.

TABLE 9.—*Births from all pregnancies, infant deaths, infant mortality rate, and per cent of stillbirths, according to order of pregnancy and age of mother*—Continued.

Order of pregnancy and age of mother.	Total births.	Live births.	Infant deaths.	Infant mortality rate.[a]	Stillbirths.	
					Number.	Per cent of total births.[a]
Twelfth pregnancy, all ages	27	27	6			
30 to 34	2	2	1			
35 to 39	12	12	3			
40 and over	13	13	2			
Thirteenth pregnancy, all ages	14	14	3			
30 to 34	1	1				
35 to 39	8	8	2			
40 and over	5	5	1			
Fourteenth pregnancy, all ages	10	10	1			
30 to 34	1	1				
35 to 39	4	4	1			
40 and over	5	5				
Fifteenth pregnancy, all ages	6	6				
35 to 39	2	2				
40 and over	4	4				
Sixteenth pregnancy, all ages	3	3	2			
35 to 39	2	2	2			
40 and over	1	1				
Seventeenth pregnancy, all ages	2	2	1			
35 to 39	2	2	1			
Eighteenth pregnancy, all ages	2	2	1			
40 and over	2	2	1			
Nineteenth pregnancy, all ages	1	1	1			
40 and over	1	1	1			

[a] Not shown where base is less than 100.

TABLE 10.—*Births during selected year, infant deaths, infant mortality rate, and per cent of stillbirths, according to age of mother at birth of child and nativity.*

Age of mother at birth of child and nativity.	Total births.	Live births.	Infant deaths.	Infant mortality rate.[a]	Stillbirths.	
					Number.	Per cent of total births.[a]
All mothers	2,197	2,144	263	122.7	53	2.4
Under 20	96	95	12	.....	1	.....
20 to 24	546	534	53	99.3	12	2.2
25 to 29	658	643	78	121.3	15	2.3
30 to 34	479	463	56	121.0	16	3.3
35 to 39	312	304	44	144.7	8	2.6
40 and over	105	104	20	192.3	1	1.0
Not reported	1	1	.....	.....	.....	.....
Native mothers	718	705	69	97.9	13	1.8
Under 20	53	53	6	.....	.....	.....
20 to 24	201	199	13	65.3	2	1.0
25 to 29	208	203	27	133.0	5	2.4
30 to 34	132	131	13	99.2	1	.8
35 to 39	95	91	6	.....	4	.....
40 and over	29	28	4	.....	1	.....
Foreign-born mothers	1,479	1,439	194	134.8	40	2.7
Under 20	43	42	6	.....	1	.....
20 to 24	345	335	40	119.4	10	2.9
25 to 29	450	440	51	115.9	10	2.2
30 to 34	347	332	43	129.5	15	4.3
35 to 39	217	213	38	178.4	4	1.8
40 and over	76	76	16	.....	.....	.....
Not reported	1	1	.....	.....	.....	.....

[a] Not shown where base is less than 100

TABLE 11.—*Mothers reporting specified number of stillbirths, all pregnancies, by number of births and nativity.*[a]

Births to mother and nativity of mother.	Number of mothers.							
	Total.	Reporting specified number of stillbirths.						
		None.	1	2	3	4	6	9
All mothers	2,155	1,971	137	31	10	3	1	2
Births:								
1	489	480	9					
2	428	413	11	4				
3	335	309	23	2	1			
4	270	234	24	10	2			
5	206	181	19	5	1			
6	132	113	15	2	1	1		
7	100	85	9	3	2		1	
8	76	59	13	2	2			
9	47	41	3	1	1	1		
10	38	32	6					
11	14	10	2	1		1		
12	14	10	2	1				1
13	3	2						1
14	1	1						
16	1	1						
18	1		1					
Native mothers	704	666	28	7	1	2		
Births:								
1	223	220	3					
2	179	175	2	2				
3	112	108	3	1				
4	65	54	8	2	1			
5	38	35	1	2				
6	31	27	3			1		
7	15	13	2					
8	18	13	5					
9	11	11						
10	8	7	1					
11	2	1				1		
12	2	2						
Foreign-born mothers	1,451	1,305	109	24	9	1	1	2
Births:								
1	266	260	6					
2	249	238	9	2				
3	223	201	20	1	1			
4	205	180	16	8	1			
5	168	146	18	3	1			
6	101	86	12	2	1			
7	85	72	7	3	2		1	
8	58	46	8	2	2			
9	36	30	3	1	1	1		
10	30	25	5					
11	12	9	2	1				
12	12	8	2	1				1
13	3	2						1
14	1	1						
16	1	1						
18	1		1					

[a] Excluding miscarriages.

TABLE 12.—*Mothers reporting specified number of miscarriages, all pregnancies, by number of pregnancies and nativity.*

Pregnancies[a] to mother and nativity of mother.	Number of mothers.							
	Total.	Reporting specified number of miscarriages.						
		None.	1	2	3	4	5	8
All mothers	2,155	1,792	235	77	34	12	4	1
Pregnancies:								
1	466	466						
2	410	381	29					
3	331	288	40	3				
4	256	208	39	8	1			
5	207	162	32	10	3			
6	126	88	24	11	3			
7	119	74	21	16	8			
8	78	54	11	7	3	3		
9	57	28	10	10	5	4		
10	50	26	13	6	2	2	1	
11	25	7	10	3	3	1		1
12	15	8	3	1	2	1		
13	5		2	1			2	
14	3		1	1	1			
15	3				3			
16	2	1				1		
18	1	1						
19	1						1	
Native mothers	704	602	73	22	4	2	1	
Pregnancies:								
1	213	213						
2	168	156	12					
3	118	96	19	3				
4	66	47	12	6	1			
5	43	30	11	2				
6	28	22	2	4				
7	17	10	5	1	1			
8	19	14	2	2	1			
9	16	7	4	2	1	2		
10	8	5	2	1				
11	3		2	1				
12	4	2	2					
13	1						1	
Foreign-born mothers	1,451	1,190	162	55	30	10	3	1
Pregnancies:								
1	253	253						
2	242	225	17					
3	213	192	21					
4	190	161	27	2				
5	164	132	21	8	3			
6	98	66	22	7	3			
7	102	64	16	15	7			
8	59	40	9	5	2	3		
9	41	21	6	8	4	2		
10	42	21	11	5	2	2	1	
11	22	7	8	2	3	1		1
12	11	6	1	1	2	1		
13	4		2	1			1	
14	3		1	1	1			
15	3				3			
16	2	1				1		
18	1	1						
19	1						1	

[a] Including miscarriages.

TABLE 13.—*Births during selected year to mothers of specified nativity, according to usual help in household.*

Usual help in household.	Births during selected year to—		
	All mothers.	Native mothers.	Foreign-born mothers.
Total	2,197	718	1,479
No hired help	1,740	456	1,284
Laundress or other partial help	371	201	170
Servant kept	71	55	16
Mother boards	9	3	6
Not reported	6	3	3

TABLE 14.—*Births during selected year to mothers gainfully employed in specified way during year before birth of infant, according to length of interval between mother's ceasing work and confinement, and nationality of mother.*

Interval between mother's ceasing work and confinement, and nationality of mother.	Births during selected year.								
	Total.	To mothers gainfully employed during year preceding birth of infant.							
		Total.	At home.		Away from home.				
			Keeping lodgers.	Other home work.	In factories.		In clerical occupations.	As saleswomen.	All other.
					Metal.	All other.			
All mothers	2,197	716	519	39	95	15	7	5	36
Gainfully employed	716	716	519	39	95	15	7	5	36
Interval:									
Under 2 weeks	522	522	485	25	2			3	7
2 weeks, under 1 month	11	11	9	2					
1 month, under 3	37	37	6	3	15	3	1		9
3 months, under 9	118	118	15	3	66	10	5	2	17
9 months or more	24	24	1	5	12	2	1		3
Not reported	4	4	3	1					
Not gainfully employed	1,480								
Not reported	1								
Native mothers	718	123	58	13	30	3	7	1	11
Gainfully employed	123	123	58	13	30	3	7	1	11
Interval:									
Under 2 weeks	56	56	47	7					2
2 weeks, under 1 month	2	2	2						
1 month, under 3	13	13	2	2	5		1		3
3 months, under 9	40	40	5	1	20	2	5	1	6
9 months or more	11	11	1	3	5	1	1		
Not reported	1	1	1						
Not gainfully employed	594								
Not reported	1								
Foreign-born mothers	1,479	593	461	26	65	12		4	25
Gainfully employed	593	593	461	26	65	12		4	25
Interval:									
Under 2 weeks	466	466	438	18	2			3	5
2 weeks, under 1 month	9	9	7	2					
1 month, under 3	24	24	4	1	10	3			6
3 months, under 9	78	78	10	2	46	8		1	11
9 months or more	13	13		2	7	1			3
Not reported	3	3	2	1					
Not gainfully employed	886								

TABLE 14.—*Births during selected year to mothers gainfully employed in specified way during year before birth of infant, according to length of interval between mother's ceasing work and confinement, and nationality of mother*—Continued.

Interval between mother's ceasing work and confinement, and nationality of mother.	Births during selected year.								
	Total.	To mothers gainfully employed during year preceding birth of infant.							
		Total.	At home.		Away from home.				
			Keeping lodgers.	Other home work.	In factories.		In clerical occupations.	As saleswomen.	All other.
					Metal.	All other.			
Italian mothers	651	243	200	15	21	4		1	2
Gainfully employed	243	243	200	15	21	4		1	2
Interval:									
Under 2 weeks	199	199	188	10				1	
2 weeks, under 1 month	5	5	4	1					
1 month, under 3	6	6	2		3	1			
3 months, under 9	25	25	5	2	13	3			2
9 months or more	6	6		1	5				
Not reported	2	2	1	1					
Not gainfully employed	408								
Lithuanian mothers	267	194	154	5	25	8			2
Gainfully employed	194	194	154	5	25	8			2
Interval:									
Under 2 weeks	157	157	152	4	1				
1 month, under 3	7	7	1		4	2			
3 months, under 9	27	27	1		19	5			2
9 months or more	3	3		1	1	1			
Not gainfully employed	73								
Irish mothers	200	51	36		6				9
Gainfully employed	51	51	36		6				9
Interval:									
Under 2 weeks	34	34	31						3
2 weeks, under 1 month	2	2	2						
1 month, under 3	2	2							2
3 months, under 9	10	10	2		5				3
9 months or more	2	2			1				1
Not reported	1	1	1						
Not gainfully employed	149								
Other foreign-born mothers	361	105	71	6	13			3	12
Gainfully employed	105	105	71	6	13			3	12
Interval:									
Under 2 weeks	76	76	67	4	1			2	2
2 weeks, under 1 month	2	2	1	1					
1 month, under 3	9	9	1	1	3				4
3 months, under 9	16	16	2		9			1	4
9 months or more	2	2							2
Not gainfully employed	256								

TABLE 15.—*All known issues during selected year to mothers of specified nationality, according to kind of attendant at birth, registration status, and inclusion in or exclusion from detailed analysis.*

Kind of attendant, registration status, and inclusion of birth in or exclusion from detailed analysis.	Issues during selected year to—								
	All mothers.	Native mothers.	Foreign-born mothers.						Mothers with nativity not reported.
			Total.	Italian.	Lithuanian.	Irish.	All other.	Not reported.	
All births	2,654	882	1,680	723	282	216	411	48	92
Physician (at hospital)	309	221	85	12	4	30	35	4	3
Physician (not at hospital) [a]	1,452	625	822	184	113	178	310	37	5
Midwife	724	30	694	490	146	2	55	1	.....
Other, none, or not reported	169	6	79	37	19	6	11	6	84
Registered	2,323	860	1,457	700	111	210	393	43	6
Physician (at hospital)	297	212	82	10	4	30	34	4	3
Physician (not at hospital)	1,413	614	796	177	100	177	305	37	3
Midwife	568	28	540	480	6	2	51	1	.....
Other, none, or not reported	45	6	39	33	1	1	3	1	.....
Unregistered	331	22	223	23	171	6	18	5	86
Physician (at hospital)	12	9	3	2	.....	.....	1	.....	.....
Physician (not at hospital)	39	11	26	7	13	1	5	.....	2
Midwife	156	2	154	10	140	.....	4	.....	.....
Other, none, or not reported	124	.....	40	4	18	5	8	5	84
Births included in detailed analysis	2,197	718	1,479	651	267	200	361	.....	.....
Physician (at hospital)	209	153	56	9	3	23	21	.....	.....
Physician (not at hospital)	1,250	534	716	162	104	169	281	.....	.....
Midwife	669	27	642	447	144	2	49	.....	.....
Other, none, or not reported	69	4	65	33	16	6	10	.....	.....
Registered	1,970	703	1,267	628	108	194	343	.....	.....
Physician (at hospital)	203	150	53	7	3	23	20	.....	.....
Physician (not at hospital)	1,214	523	691	155	92	168	276	.....	.....
Midwife	516	26	490	437	6	2	45	.....	.....
Other, none, or not reported	37	4	33	29	1	1	2	.....	.....
Unregistered	227	15	212	23	165	6	18	.....	.....
Physician (at hospital)	6	3	3	2	.....	.....	1	.....	.....
Physician (not at hospital)	36	11	25	7	12	1	5	.....	.....
Midwife	153	1	152	10	138	.....	4	.....	.....
Other, none, or not reported	32	.....	32	4	15	5	8	.....	.....
Births excluded from detailed analysis	457	164	201	72	15	16	50	48	92
Physician (at hospital)	100	68	29	3	1	7	14	4	3
Physician (not at hospital)	202	91	106	22	9	9	29	37	5
Midwife	55	3	52	43	2	.....	6	1	.....
Other, none, or not reported	100	2	14	4	3	.....	1	6	84
Registered	353	157	190	72	9	16	50	43	6
Physician (at hospital)	94	62	29	3	1	7	14	4	3
Physician (not at hospital)	199	91	105	22	8	9	29	37	3
Midwife	52	2	50	43	.....	.....	6	1	.....
Other, none, or not reported	8	2	6	4	.....	.....	1	1	.....
Unregistered	104	7	11	.....	6	.....	.....	5	83
Physician (at hospital)	6	6	.....	.....	.....	.....	.....	.....	.....
Physician (not at hospital)	3	.....	1	.....	1	.....	.....	.....	2
Midwife	3	1	2	.....	2	.....	.....	.....	.....
Other, none, or not reported	92	.....	8	.....	3	.....	.....	5	84

[a] Including 55 cases attended by both physician and midwife; 2 mothers were native, 27 Italian, 23 Lithuanian, and 3 of other foreign nationality.

TABLE 16.—*All known issues during selected year, infant deaths, infant mortality rate, and per cent of stillbirths, according to kind of attendant at birth, registration status, and inclusion in or exclusion from detailed analysis.*

Kind of attendant, registration status, and inclusion of birth in or exclusion from detailed analysis.	Total issues.	Live births.	Infant deaths.	Infant mortality rate.[a]	Stillbirths and miscarriages.	
					Number.	Per cent of total issues.[a]
All births	2,654	2,568	311	121.1	86	3.2
Physician (at hospital)	309	295	43	145.8	14	4.5
Physician (not at hospital)[b]	1,452	1,388	171	123.2	64	4.4
Midwife	724	716	81	113.1	8	1.1
Other, none, or not reported	169	169	16	94.7	.....	.....
Registered	2,323	2,239	259	115.7	84	3.6
Physician (at hospital)	297	284	38	133.8	13	4.4
Physician (not at hospital)	1,413	1,350	164	121.5	63	4.5
Midwife	568	560	53	94.6	8	1.4
Other, none, or not reported	45	45	4	.....	.....	.....
Unregistered	331	329	52	158.1	2	.6
Physician (at hospital)	12	11	5	.....	1	.....
Physician (not at hospital)	39	38	7	.....	1	.....
Midwife	156	156	28	179.5	.....	.....
Other, none, or not reported	124	124	12	96.8	.....	.....
Births included in detailed analysis	2,197	2,144	263	122.7	53	2.4
Physician (at hospital)	209	207	34	164.3	2	1.0
Physician (not at hospital)	1,250	1,206	148	122.7	44	3.5
Midwife	669	662	75	113.3	7	1.0
Other, none, or not reported	69	69	6	.....	.....	.....
Registered	1,970	1,918	222	115.7	52	2.6
Physician (at hospital)	203	201	31	154.2	2	1.0
Physician (not at hospital)	1,214	1,171	142	121.3	43	3.5
Midwife	516	509	47	92.3	7	1.4
Other, none, or not reported	37	37	2	.....	.....	.....
Unregistered	227	226	41	181.4	1	.4
Physician (at hospital)	6	6	3	.....	.....	.....
Physician (not at hospital)	36	35	6	.....	1	.....
Midwife	153	153	28	183.0	.....	.....
Other, none, or not reported	32	32	4	.....	.....	.....
Births excluded from detailed analysis	457	424	48	113.2	33	7.2
Physician (at hospital)	100	88	9	.....	12	12.0
Physician (not at hospital)	202	182	23	126.4	20	9.9
Midwife	55	54	6	.....	1	.....
Other, none, or not reported	100	100	10	100.0	.....	.....
Registered	353	321	37	115.3	32	9.1
Physician (at hospital)	94	83	7	.....	11	.....
Physician (not at hospital)	199	179	22	122.9	20	10.1
Midwife	52	51	6	.....	1	.....
Other, none, or not reported	8	8	2	.....	.....	.....
Unregistered	104	103	11	106.8	1	1.0
Physician (at hospital)	6	5	2	.....	1	.....
Physician (not at hospital)	3	3	1	.....	.....	.....
Midwife	3	3	.....	.....	.....	.....
Other, none, or not reported	92	92	8	.....	.....	.....

[a] Not shown where base is less than 100.
[b] Including 55 cases attended by both physician and midwife—45 live births, 17 infant deaths, and 10 stillbirths.

TABLE 17.—*Births during selected year to mothers of specified nativity, according to kind and duration of help at confinement.*

Kind and duration of help at confinement.	Births during selected year to—		
	All mothers.	Native mothers.	Foreign-born mothers.
Total	2,197	718	1,479
None, or members of household	483	76	407
Trained nurse	195	113	82
Less than 1 week	18	11	7
1 week but less than 2	59	29	30
2 weeks but less than 1 month	97	56	41
1 month or more	21	17	4
Hospital	209	150	59
Less than 1 week	4	3	1
1 week but less than 2	71	53	18
2 weeks but less than 1 month	125	89	36
1 month or more	5	4	1
Not reported	4	1	3
Other help	1,307	377	930
Less than 1 week	71	9	62
1 week but less than 2	408	84	324
2 weeks but less than 1 month	527	203	324
1 month or more	299	81	218
Not reported	2	.....	2
Not reported	3	2	1

TABLE 18.—*Live births during selected year to all mothers and to mothers who died within one year after birth of infant and infant deaths, according to nativity of mother and interval between confinement and death of mother.*

Nativity of mother and interval between confinement and death of mother.	Live births.	Infant deaths.
All mothers	2,144	263
Died during the year	16	7
Number of months after confinement:		
Under 1 month	10	6
3 months but less than 4	2	1
5 months but less than 6	1	.....
7 months but less than 8	1	.....
8 months but less than 9	1	.....
9 months or later	1	.....
Native mothers	705	69
Died during the year	8	2
Number of months after confinement:		
Under 1 month	4	2
3 months but less than 4	1	.....
7 months but less than 8	1	.....
8 months but less than 9	1	.....
9 months or later	1	.....
Foreign-born mothers	1,439	194
Died during the year	8	5
Number of months after confinement:		
Under 1 month	6	4
3 months but less than 4	1	1
5 months but less than 6	1	.....

TABLE 19.—*Infants born during selected year to mothers of specified nativity and surviving at beginning of the month, number and per cent of infants dying subsequently in first year, and infant deaths in specified month of life, according to month of life and type of feeding in the month.*

Month of life and type of feeding.	All mothers.				Native mothers.				Foreign-born mothers.			
	Total infant survivors.[a]	Subsequent infant deaths in— First year. Number.	Per cent.	Specified month.	Infant survivors.[a]	Subsequent infant deaths in— First year. Number.	Per cent.	Specified month.	Infant survivors.[a]	Subseqent infant deaths in— First year. Number.	Per cent.	Specified month.
First month	2,142	263	12.3	107	704	69	9.8	31	1,438	194	13.5	76
Breast exclusively	1,801	134	7.4	27	577	33	5.7	8	1,224	101	8.3	19
Mixed	52	8	15.4	2	16	2	12.5	1	36	6	16.7	1
Artificial exclusively	226	58	25.7	15	92	15	16.3	3	134	43	32.1	12
Not fed, died at once	63	63	.....	63	19	19	.....	19	44	44	.....	44
Second month	2,035	156	7.7	28	673	38	5.6	9	1,362	118	8.7	19
Breast exclusively	1,624	88	5.4	10	497	18	3.6	4	1,127	70	6.2	6
Mixed	95	10	10.5	5	36	3	8.3	3	59	7	11.9	2
Artificial exclusively	[b] 316	[b] 58	18.4	[b] 13	140	17	12.1	2	[b] 176	[b] 41	23.3	[b] 11
Third month	2,007	128	6.4	18	664	29	4.4	6	1,343	99	7.4	12
Breast exclusively	[c] 1,479	[c] 62	4.2	[c] 6	447	14	3.1	1	[c] 1,032	[c] 48	4.7	[c] 5
Mixed	[c] 138	[c] 12	8.7	[c] 3	41	....	.....	....	[c] 97	[c] 12	12.4	[c] 3
Artificial exclusively	390	54	13.8	9	176	15	8.5	5	214	39	18.2	4
Fourth month	1,989	110	5.5	16	658	23	3.5	5	1,331	87	6.5	11
Breast exclusively	[c] 1,336	[c] 41	3.1	[c] 5	401	11	2.7	2	[c] 935	[c] 30	3.2	[c] 3
Mixed	188	12	6.4	3	50	....	.....	....	138	12	8.7	3
Artificial exclusively	465	57	12.3	8	207	12	5.8	3	258	45	17.4	5
Fifth month	1,973	94	4.8	16	653	18	2.8	3	1,320	76	5.8	13
Breast exclusively	1,217	31	2.5	4	366	7	1.9	1	851	24	2.8	3
Mixed	249	12	4.8	2	67	2	3.0	....	182	10	5.5	2
Artificial exclusively	[c] 507	[c] 51	10.1	[c] 10	220	9	4.1	2	[c] 287	[c] 42	14.6	[c] 8
Sixth month	1,957	78	4.0	19	650	15	2.3	3	1,307	63	4.8	16
Breast exclusively	1,077	24	2.2	3	319	4	1.3	....	758	20	2.6	3
Mixed	334	10	3.0	3	91	3	3.3	....	243	7	2.9	3
Artificial exclusively	546	44	8.1	13	240	8	3.3	3	306	36	11.8	10
Seventh month	1,938	59	3.0	7	647	12	1.9	1	1,291	47	3.6	6
Breast exclusively	875	18	2.1	2	258	2	.8	....	617	16	2.6	2
Mixed	475	8	1.7	1	131	3	2.3	....	344	5	1.5	1
Artificial exclusively	588	33	5.6	4	258	7	2.7	1	330	26	7.9	3
Eighth month	1,931	52	2.7	13	646	11	1.7	4	1,285	41	3.2	9
Breast exclusively	732	15	2.0	2	212	2	.9	....	520	13	2.5	2
Mixed	573	7	1.2	3	165	3	1.8	2	408	4	1.0	1
Artificial exclusively	626	30	4.8	8	269	6	2.2	2	357	24	6.7	6
Ninth month	1,918	39	2.0	13	642	7	1.1	3	1,276	32	2.5	10
Breast exclusively	580	12	2.1	5	172	2	1.2	2	408	10	2.5	3
Mixed	677	5	.7	1	187	1	.5	....	490	4	.8	1
Artificial exclusively	[c] 661	[c] 22	3.3	[c] 7	283	4	1.4	1	[c] 378	[c] 18	4.8	[c] 6

[a] Excluding 2 infants for whom feeding was not reported—1 with native mother and 1 with foreign-born mother.
[b] Including 2 infants who died at beginning of month who were fed in specified way in preceding month.
[c] Including 1 infant who died at beginning of month who was fed in specified way in preceding month.

TABLE 20.—*Number and per cent distribution of infants born during selected year and surviving at end of specified month, by type of feeding during month specified, according to nationality of mother.*

Type of feeding and nationality of mother.	Infants[a] born during selected year and surviving at end of—																	
	First month.		Second month.		Third month.		Fourth month.		Fifth month.		Sixth month.		Seventh month.		Eighth month.		Ninth month.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All mothers	2,035	100.0	2,007	100.0	1,989	100.0	1,973	100.0	1,957	100.0	1,938	100.0	1,931	100.0	1,918	100.0	1,905	100.0
Breast exclusively	1,774	87.2	1,614	80.4	1,473	74.1	1,331	67.5	1,213	62.0	1,074	55.4	873	45.2	730	38.1	575	30.2
Mixed	50	2.5	90	4.5	135	6.8	185	9.4	247	12.6	331	17.1	474	24.6	570	29.7	676	35.5
Artificial exclusively	211	10.4	303	15.1	381	19.2	457	23.2	497	25.4	533	27.5	584	30.2	618	32.2	654	34.3
Native mothers	673	100.0	664	100.0	658	100.0	653	100.0	650	100.0	647	100.0	646	100.0	642	100.0	639	100.0
Breast exclusively	569	84.6	493	74.3	446	67.8	399	61.1	365	56.2	319	49.3	258	39.9	212	33.0	170	26.6
Mixed	15	2.2	33	5.0	41	6.2	50	7.7	67	10.3	91	14.1	131	20.3	163	25.4	187	29.3
Artificial exclusively	89	13.2	138	20.8	171	26.0	204	31.2	218	33.5	237	36.6	257	39.8	267	41.6	282	44.1
Foreign-born mothers	1,362	100.0	1,343	100.0	1,331	100.0	1,320	100.0	1,307	100.0	1,291	100.0	1,285	100.0	1,276	100.0	1,266	100.0
Breast exclusively	1,205	88.5	1,121	83.5	1,027	77.2	932	70.6	848	64.9	755	58.5	615	47.9	518	40.6	405	32.0
Mixed	35	2.6	57	4.2	94	7.1	135	10.2	180	13.8	240	18.6	343	26.7	407	31.9	489	38.6
Artificial exclusively	122	9.0	165	12.3	210	15.8	253	19.2	279	21.4	296	22.9	327	25.5	351	27.5	372	29.4
Italian mothers	596	100.0	592	100.0	585	100.0	582	100.0	580	100.0	577	100.0	574	100.0	571	100.0	567	100.0
Breast exclusively	551	92.5	526	88.9	493	84.3	453	77.8	416	71.7	366	63.4	305	53.1	255	44.7	209	36.9
Mixed	18	3.0	26	4.4	42	7.2	61	10.5	84	14.5	123	21.3	171	29.8	209	36.6	240	42.3
Artificial exclusively	27	4.5	40	6.8	50	8.6	68	11.7	80	13.8	88	15.3	98	17.1	107	18.7	118	20.8
Lithuanian mothers	244	100.0	235	100.0	232	100.0	228	100.0	223	100.0	218	100.0	216	100.0	214	100.0	211	100.0
Breast exclusively	197	80.7	177	75.3	151	65.1	127	55.7	109	48.9	97	44.5	72	33.3	59	27.6	46	21.8
Mixed	7	2.9	6	2.6	12	5.2	25	11.0	33	14.8	35	16.1	48	22.2	51	23.8	61	28.9
Artificial exclusively	40	16.4	52	22.1	69	29.7	76	33.3	81	36.3	86	39.5	96	44.4	104	48.6	104	49.3

Irish mothers...	182	100.0	180	100.0	178	100.0	175	100.0	170	100.0	167	100.0	167	100.0	166	100.0	163	100.0
Breast exclusively.....	161	88.5	151	83.9	140	78.7	132	75.4	120	70.6	109	65.3	92	55.1	80	48.2	61	37.4
Mixed.....	3	1.7	6	3.3	11	6.2	13	7.4	17	10.0	22	13.2	34	20.4	41	24.7	54	33.1
Artificial exclusively..	18	9.9	23	12.8	27	15.2	30	17.1	33	19.4	36	21.6	41	24.6	45	27.1	48	29.5
Other foreign-born mothers..	340	100.0	336	100.0	336	100.0	335	100.0	334	100.0	329	100.0	328	100.0	325	100.0	325	100.0
Breast exclusively.....	296	87.1	267	79.5	243	72.3	220	65.7	203	60.8	183	55.6	146	44.5	124	38.2	89	27.4
Mixed.....	7	2.1	19	5.7	29	8.6	36	10.8	46	13.8	60	18.2	90	27.4	106	32.6	134	41.2
Artificial exclusively..	37	10.9	50	14.9	64	19.1	79	23.6	85	25.5	86	26.1	92	28.1	95	29.2	102	31.4

[a] Excluding 2 infants for whom feeding was not reported—1 with native mother and 1 with foreign-born mother.

TABLE 21.—*Infants born during selected year and surviving at end of 3, 6, and 9 months whose fathers earned specified amount, and number and per cent of subsequent infant deaths during first year, according to type of feeding throughout specified period and nativity of mother.*

Type of feeding throughout specified period and nativity of mother.	Total infant survivors.[a]	Subsequent infant deaths.		Earnings of father.																								
				Under $450.			$450 to $549			$550 to $649			$650 to $849			$850 to $1,049			$1,050 to $1,249			$1,250 and over.			No earnings.		Not reported.	
		Number.	Per cent.	Infant survivors.	Subsequent infant deaths. Number.	Subsequent infant deaths. Per cent.	Infant survivors.	Subsequent infant deaths. Number.	Subsequent infant deaths. Per cent.	Infant survivors.	Subsequent infant deaths. Number.	Subsequent infant deaths. Per cent.	Infant survivors.	Subsequent infant deaths. Number.	Subsequent infant deaths. Per cent.	Infant survivors.	Subsequent infant deaths. Number.	Subsequent infant deaths. Per cent.	Infant survivors.	Subsequent infant deaths. Number.	Subsequent infant deaths. Per cent.	Infant survivors.	Subsequent infant deaths. Number.	Subsequent infant deaths. Per cent.	Infant survivors.	Subsequent infant deaths.	Infant survivors.	Subsequent infant deaths.
ALL MOTHERS.																												
First 3 months	1,989	110	5.5	437	34	7.8	278	19	6.8	258	18	7.0	375	17	4.5	291	14	4.8	127	5	3.9	178	1	0.6	17	1	28	1
Breast exclusively	1,467	55	3.7	341	21	6.2	213	9	4.2	192	7	3.6	268	9	3.4	208	5	2.4	87	2	2.3	130	....	....	10	1	18	1
Mixed	36	1	2.8	6	....	....	3	....	....	7	1	14.3	6	....	....	4	....	....	....	....	....	10	....	....	....	....	....	....
Artificial exclusively	190	26	13.7	34	5	14.7	20	5	25.0	24	4	16.7	40	5	12.5	26	4	15.4	19	2	10.5	19	1	5.3	2	....	6	....
More than one type	296	28	9.5	56	8	14.3	42	5	11.9	35	6	17.1	61	3	4.9	53	5	9.4	21	1	4.8	19	....	....	5	....	4	....
First 6 months	1,938	59	3.0	422	19	4.5	269	10	3.7	249	9	3.6	370	12	3.2	283	6	2.1	123	1	.8	177	....	....	17	1	28	1
Breast exclusively	1,070	21	2.0	236	7	3.0	155	2	1.3	132	2	1.5	207	6	2.9	157	2	1.3	64	....	....	98	....	....	6	1	15	1
Mixed	27	1	3.7	6	....	....	3	....	....	3	1	33.3	5	....	....	2	....	....	....	....	....	8	....	....	....	....	....	....
Artificial exclusively	177	13	7.3	30	1	3.3	19	4	21.1	22	2	9.1	39	4	10.3	24	2	8.3	17	....	....	18	....	....	2	....	6	....
More than one type	664	24	3.6	150	11	7.3	92	4	4.3	92	4	4.3	119	2	1.7	100	2	2.0	42	1	2.4	53	....	....	9	....	7	....
First 9 months	1,905	26	1.4	410	7	1.7	267	8	3.0	244	4	1.6	363	5	1.4	279	2	.7	122	....	....	177	....	....	16	....	27	....
Breast exclusively	572	7	1.2	132	2	1.5	86	2	2.3	70	1	1.4	111	2	1.8	81	....	....	35	....	....	49	....	....	3	....	5	....
Mixed	21	....	....	5	....	....	3	....	....	2	....	....	5	....	....	1	....	....	....	....	....	5	....	....	....	....	....	....
Artificial exclusively	170	7	4.1	28	....	....	19	4	21.1	21	1	4.8	36	1	2.8	23	1	4.3	17	....	....	18	....	....	2	....	6	....
More than one type	1,142	12	1.1	245	5	2.0	159	2	1.3	151	2	1.3	211	2	.9	174	1	.6	70	....	....	105	....	....	11	....	16	....
NATIVE MOTHERS.																												
First 3 months	658	23	3.5	33	2	6.1	39	2	5.1	60	2	3.3	161	5	3.1	148	7	4.7	78	2	2.6	127	1	.8	5	1	7	1
Breast exclusively	445	12	2.7	22	2	9.1	27	2	7.4	41	....	....	108	4	3.7	98	1	1.0	54	1	1.9	88	....	....	3	1	4	1
Mixed	12	....	....	....	....	....	....	....	....	1	....	....	2	....	....	1	....	....	....	....	....	8	....	....	....	....	....	....
Artificial exclusively	83	6	7.2	4	....	....	3	....	....	6	1	16.7	22	1	4.5	18	3	16.7	11	....	....	18	1	5.6	....	....	1	....
More than one type	118	5	4.2	7	....	....	9	....	....	12	1	8.3	29	....	....	31	3	10.0	13	1	7.7	13	....	....	2	....	2	....

First 6 months	647	12	1.9	33	2	6.1	37			60	2	3.3	160	4	2.5	143	2	1.4	76			126			5	1	7	1
Breast exclusively	318	4	1.3	12			20			26			79	1	1.3	75	1	1.3	39			62			1	1	4	1
Mixed	9												2			1						6						
Artificial exclusively	80	3	3.8	4			3			6	1	16.7	22	1	4.5	16	1	6.3	11			17					1	
More than one type	240	5	2.1	17	2	11.8	14			28	1	3.6	57	2	3.5	51			26			41			4		2	
First 9 months	639	4	.6	32	1	3.1	87			59	1	1.7	158	2	1.3	141			76			126			4		6	
Breast exclusively	170			7			13			16			44			38			20			31					1	
Mixed	5												2									3						
Artificial exclusively	79	2	2.5	4			3			6	1	16.7	22	1	4.5	15			11			17					1	
More than one type	385	2	.5	21	1	4.8	21			37			90	1	1.1	88			45			75			4		4	
FOREIGN-BORN MOTHERS.																													
First 3 months	1,331	87	6.5	404	32	7.9	239	17	7.1	198	16	8.1	214	12	5.6	143	7	4.9	49	3	6.1	51			12		21	
Breast exclusively	1,022	43	4.2	319	19	6.0	186	7	3.8	151	7	4.6	160	5	3.1	110	4	3.6	33	1	3.0	42			7		14	
Mixed	24	1	4.2	6			3			6	1	16.7	4			3						2						
Artificial exclusively	107	20	18.7	30	5	16.7	17	5	29.4	18	3	16.7	18	4	2.2	8	1	12.5	8	2	25.0	1			2		5	
More than one type	178	23	12.9	49	8	16.3	33	5	15.2	23	5	21.7	32	3	9.4	22	2	9.1	8			6			3		2	
First 6 months	1,291	47	3.6	389	17	4.4	232	10	4.3	189	7	3.7	210	8	3.8	140	4	2.9	47	1	2.1	51			12		21	
Breast exclusively	752	17	2.3	224	7	3.1	135	2	1.5	106	2	1.9	128	5	3.9	82	1	1.2	25			36			5		11	
Mixed	18	1	5.6	6			3			3	1	33.3	3			1						2						
Artificial exclusively	97	10	10.3	26	1	3.8	16	4	25.0	16	1	6.3	17	3	17.6	8	1	12.5	6			1			2		5	
More than one type	424	19	4.5	133	9	6.8	78	4	5.1	64	3	4.7	62			49	2	4.1	16	1	6.3	12			5		5	
First 9 months	1,266	22	1.7	378	6	1.6	230	8	3.5	185	3	1.6	205	3	1.5	138	2	1.4	46			51			12		21	
Breast exclusively	402	7	1.7	125	2	1.6	73	2	2.7	54	1	1.9	67	2	3.0	43			15			18			3		4	
Mixed	16			5			3			2			3			1						2						
Artificial exclusively	91	5	5.5	24			16	4	25.0	15			14			8	1	12.5	6			1			2		5	
More than one type	757	10	1.3	224	4	1.8	138	2	1.4	114	2	1.8	121	1	.8	86	1	1.2	25			30			7		12	

a Excluding 2 infants for whom feeding was not reported—1 with native mother and 1 with foreign-born mother.

TABLE 22.—*Infants born during selected year and surviving at end of 3, 6, and 9 months of age whose fathers earned specified amount, and number and per cent artificially fed, according to nationality of mother.*

Infants living and artificially fed at specified ages and nationality of mother.	Infants born during selected year—										
	Total.[a]	Whose fathers earned specified amount.									
		Under $450.	$450 to $549	$550 to $649	$650 to $849	$850 to $1,049	$1,050 to $1,249	$1,250 and over.	No earnings.	Not reported.
ALL MOTHERS.										
Infants living at end of 3 months	1,989	437	278	258	375	291	127	178	17	28
Number artificially fed	381	72	43	49	80	59	36	30	4	8
Per cent artificially fed	19.2	16.5	15.5	19.0	21.3	20.3	28.3	16.9	23.5	28.6
Infants living at end of 6 months	1,938	422	269	249	370	283	123	177	17	28
Number artificially fed	533	102	59	66	110	82	46	52	6	10
Per cent artificially fed	27.5	24.2	21.9	26.5	29.7	29.0	37.4	29.4	35.3	35.7
Infants living at end of 9 months	1,905	410	267	244	363	279	122	177	16	27
Number artificially fed	654	126	72	80	128	101	50	75	8	14
Per cent artificially fed	34.3	30.7	27.0	32.8	35.3	36.2	41.0	42.4	50.0	51.9
NATIVE MOTHERS.										
Infants living at end of 3 months	658	33	39	60	161	148	78	127	5	7
Number artificially fed	171	11	10	17	41	41	22	26	.....	3
Per cent artificially fed	26.0	33.3	25.6	28.3	25.5	27.7	28.2	20.5	.....	42.9
Infants living at end of 6 months	647	33	37	60	160	143	76	126	5	7
Number artificially fed	237	15	12	26	57	49	28	45	2	3
Per cent artificially fed	36.6	45.5	32.4	43.3	35.6	34.3	36.8	35.7	40.0	42.9
Infants living at end of 9 months	639	32	37	59	158	141	76	126	4	6
Number artificially fed	282	16	12	29	65	58	32	63	3	4
Per cent artificially fed	44.1	50.0	32.4	49.2	41.1	41.1	42.1	50.0	75.0	66.7
FOREIGN-BORN MOTHERS.										
Infants living at end of 3 months	1,331	404	239	198	214	143	49	51	12	21
Number artificially fed	210	61	33	32	39	18	14	4	4	5
Per cent artificially fed	15.8	15.1	13.8	16.2	18.2	12.6	28.6	7.8	33.3	23.8
Infants living at end of 6 months	1,291	389	232	189	210	140	47	51	12	21
Number artificially fed	296	87	47	40	53	33	18	7	4	7
Per cent artificially fed	22.9	22.4	20.3	21.2	25.2	23.6	38.3	13.7	33.3	33.3
Infants living at end of 9 months	1,266	378	230	185	205	138	46	51	12	21
Number artificially fed	372	110	60	51	63	43	18	12	5	10
Per cent artificially fed	29.4	29.1	26.1	27.6	30.7	31.2	39.1	23.5	41.7	47.6

Italian mothers.																		
Infants living at end of 3 months		585		229		128		93		63		36		8		14		8		6
Number artificially fed		50		21		8		7		6		2		1		1		2		2
Per cent artificially fed	8.6		9.2		6.3		7.5		9.5		5.6		12.5		7.1		25.0		33.3	
Infants living at end of 6 months		577		225		127		91		62		36		8		14		8		6
Number artificially fed		88		36		13		14		10		7		2		2		2		2
Per cent artificially fed	15.3		16.0		10.2		15.4		16.1		19.4		25.0		14.3		25.0		33.3	
Infants living at end of 9 months		567		219		126		89		61		36		8		14		8		6
Number artificially fed		118		51		17		18		13		10		2		3		2		2
Per cent artificially fed	20.8		23.3		13.5		20.2		21.3		27.8		25.0		21.4		25.0		33.3	
Lithuanian mothers.																		
Infants living at end of 3 months		232		97		56		32		23		11		2		4		2		5
Number artificially fed		69		28		16		15		5		3		.....		.....		1		1
Per cent artificially fed	29.7		28.9		28.6		46.9		21.7		27.3		.....		.....		50.0		20.0	
Infants living at end of 6 months		218		92		51		29		23		10		2		4		2		5
Number artificially fed		86		34		21		15		9		4		1		.....		1		1
Per cent artificially fed	39.5		37.0		41.2		51.7		39.1		40.0		50.0		.....		50.0		20.0	
Infants living at end of 9 months		211		88		50		29		22		9		2		4		2		5
Number artificially fed		104		39		29		17		9		3		1		1		2		3
Per cent artificially fed	49.3		44.3		58.0		58.6		40.9		33.3		50.0		25.0		100.0		60.0	
Irish mothers.																		
Infants living at end of 3 months		178		28		25		29		46		31		9		7		.....		3
Number artificially fed		27		6		3		3		8		3		2		.....		.....		2
Per cent artificially fed	15.2		21.4		12.0		10.3		17.4		9.7		22.2		.....		.....		66.7	
Infants living at end of 6 months		167		23		25		26		44		30		9		7		.....		3
Number artificially fed		36		8		6		3		9		5		3		.....		.....		2
Per cent artificially fed	21.6		34.8		24.0		11.5		20.5		16.7		33.3		.....		.....		66.7	
Infants living at end of 9 months		163		23		25		25		42		29		9		7		.....		3
Number artificially fed		48		11		6		3		12		8		4		2		.....		2
Per cent artificially fed	29.5		47.8		24.0		12.0		28.6		27.6		44.4		28.6		.....		66.7	
Other foreign-born mothers.																		
Infants living at end of 3 months		336		50		30		44		82		65		30		26		2		7
Number artificially fed		64		6		6		7		20		10		11		3		1		.....
Per cent artificially fed	19.1		12.0		20.0		15.9		24.4		15.4		36.7		11.5		50.0		.....	
Infants living at end of 6 months		329		49		29		43		81		64		28		26		2		7
Number artificially fed		86		9		7		8		25		17		12		5		1		2
Per cent artificially fed	26.1		18.4		24.1		18.6		30.9		26.6		42.9		19.2		50.0		28.6	
Infants living at end of 9 months		325		48		29		42		80		64		27		26		2		7
Number artificially fed		102		9		8		13		29		22		11		6		1		3
Per cent artificially fed	31.4		18.8		27.6		31.0		36.3		34.4		40.7		23.1		50.0		42.9	

[a] Excluding 2 infants for whom feeding was not reported—1 with native mother and 1 with foreign-born mother.

TABLE 23.—*Infants born during selected year and weaned under 1 year of age, by age and reasons for weaning.*

Reason for weaning.	Total infants weaned.	Age in months at time of weaning.											
		1	2	3	4	5	6	7	8	9	10	11	12
All reasons	740	111	63	89	84	50	49	56	43	43	60	52	40
Mother pregnant	122	....	....	3	9	8	7	17	10	18	20	19	11
Illness of mother	79	18	8	5	11	5	8	4	5	1	4	4	6
Infection or other abnormal condition of breast	17	5	4	4	1	....	1	1	....	....	1	....	....
Poor, insufficient, or no milk	365	74	43	58	52	32	19	24	16	15	16	10	6
Mother died	2	....	....	1	....	....	1	....	....	....	....	....	....
Mother went to work	9	1	1	....	1	1	1	1	1	....	1	....	1
Mother's judgment	58	2	....	3	....	1	4	2	4	6	11	13	12
Doctor's advice	42	5	1	7	3	2	4	4	4	2	3	4	3
Infant would not nurse	18	3	5	2	3	1	3	1	....	....	....	....	....
Infant's illness	18	3	1	5	3	....	....	2	....	....	2	2	....
Infant taken from mother	2	....	....	....	....	....	1	....	1	....	....	....	....
All other [a]	3	....	....	1	1	....	....	....	....	....	1	....	....
Not reported	5	....	....	....	....	....	....	....	2	1	1	....	1

[a] Including 1 weaned at visiting nurse's direction, 1 on account of mother caring for sick child, and 1 mother unable to nurse for reasons not stated.

TABLE 24.—*Births during selected year in each father's earnings group, according to occupation of father.*

Occupation of father.	Total births.	Earnings of father.								
		Under $450.	$450 to $549	$550 to $649	$650 to $849	$850 to $1,049	$1,050 to $1,249	$1,250 and over.	No earnings.	Not reported.
All occupations	2,197	492	316	286	416	308	135	192	22	30
Manufacturing and mechanical industries	1,499	418	242	206	276	193	82	70	1	11
Blacksmiths	14	1	4	2	1	4	....	2	....	....
Boiler makers	2	....	....	....	1	1	....	....	....	....
Builders and contractors	22	....	....	1	6	6	2	6	....	1
Compositors, linotypers, and pressmen	8	....	....	1	1	2	2	2	....	....
Electricians, electrical engineers	16	....	....	....	7	5	1	2	....	1
Factory operatives [a]	1,041	353	205	160	188	76	28	25	1	5
Metal	1,013	351	201	153	183	68	27	24	1	5
Rubber	2	....	1	....	1	....	....	....	....	....
Other	26	2	3	7	4	8	1	1	....	....
Laborers, helpers, and apprentices (not in factory)	35	23	7	2	3	....	....	....	....	....
Machinists, millwrights, and toolmakers	110	3	2	7	26	45	22	5	....	....
Manufacturers, proprietors, managers, and officials	33	....	....	2	1	5	1	22	....	2
Shoemakers and cobblers (not in factory)	17	7	4	2	3	....	....	1	....	....
Skilled mechanics, building trades	129	20	11	18	24	32	20	3	....	1
Tailors	24	5	4	5	4	5	....	1	....	....
Engineers, firemen	29	6	4	4	7	3	4	....	....	1
Others in manufacturing and mechanical industries	19	....	1	2	4	9	2	1	....	....
Trade	236	21	27	22	48	44	10	51	2	11
Bankers, brokers, real estate and insurance agents	21	....	....	....	2	6	2	10	....	1
Delivery men	50	7	6	3	22	6	....	....	....	1
Laborers	15	3	6	4	1	....	1	....	....	....
Retail and wholesale dealers (proprietors, officials, and managers)	91	5	13	5	14	15	4	25	2	8
Salesmen and commercial travelers	41	4	1	2	5	10	2	16	....	1
Others in trade	18	2	1	3	4	7	1	....	....	....

[a] Excluding persons engaged in work in the factory which is not peculiar to the industry, as clerks, machinists, boilermakers, etc.

TABLE 24.—*Births during selected year in each father's earnings group, according to occupation of father*—Continued.

Occupation of father.	Total births.	Earnings of father.								
		Under $450.	$450 to $549	$550 to $649	$650 to $849	$850 to $1,049	$1,050 to $1,249	$1,250 and over.	No earnings.	Not reported.
Transportation	132	21	25	19	29	18	12	8		
Chauffeurs, teamsters, expressmen	49	10	9	10	14	4	1	1		
Conductors, motormen, and trainmen	27	2	1	2	8	7	5	2		
Express, post, telegraph, and telephone employees	8			1	1	1	4	1		
Laborers	26	8	12	4	2					
Proprietors, officials, and managers	5					1		4		
Others in transportation	17	1	3	2	4	5	2			
Public service	43	7	2	9	1	5	14	4		1
Firemen and policemen	18	1				3	12	2		
Laborers	19	6	2	9	1					1
Officials and inspectors	3					1		2		
Others in public service	3					1	2			
Professional and semiprofessional pursuits	52	1		4	4	6	7	30		
Domestic and personal service	118	14	13	12	33	21	4	17	1	3
Barbers	24	2	1	2	8	8	2	1		
Janitors and elevator operators	15	1	5	4	5					
Saloon keepers and bartenders	57	8	4	5	13	9	2	12	1	3
Servants	6	2			1	3				
Others in domestic and personal service	16	1	3	1	6	1		4		
Clerical occupations (all industries)	72	3	3	10	20	18	6	10		2
Agriculture and forestry	15	4		2	3	2		2		2
Farmers or farm workers	14	3		2	3	2		2		2
Lumbermen and woodchoppers	1	1								
No occupation	18								18	
Not reported	12	3	4	2	2	1				

TABLE 25.—*Number and per cent distribution of births during selected year to mothers of specified nativity, according to earnings of father.*

Earnings of father.	Births during selected year to—					
	All mothers.		Native mothers.		Foreign-born mothers.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All classes	2,197	100.0	718	100.0	1,479	100.0
Under $450	492	22.4	40	5.6	452	30.6
$450 to $549	316	14.4	46	6.4	270	18.3
$550 to $649	286	13.1	65	9.1	221	14.9
$650 to $849	416	18.9	179	24.8	237	16.0
$850 to $1,049	308	14.0	157	21.9	151	10.2
$1,050 to $1,249	135	6.1	81	11.3	54	3.7
$1,250 and over	192	8.7	137	19.1	55	3.7
No earnings	22	1.0	6	.8	16	1.1
Not reported	30	1.4	7	1.0	23	1.6

TABLE 26.—*Births during selected year in families of specified number of persons and average number of persons per family, according to earnings of father and nativity of mother.*

Earnings of father and nativity of mother.	Average number of persons per family.	Births during selected year in—														
		Total.	Families of specified number[a] of persons.													
			1	2	3	4	5	6	7	8	9	10	11	12	14	Not reported.[b]
All mothers	4.0	2,197	5	582	527	355	291	170	120	69	38	19	7	2	2	10
Under $450	4.0	492	....	108	117	93	77	43	28	12	4	7	....	....	....	3
$450 to $549	4.1	316	....	85	72	44	48	24	22	10	6	2	....	1	1	1
$550 to $649	4.0	286	....	69	68	51	39	23	15	13	6	....	....	....	....	2
$650 to $849	4.0	416	....	107	107	65	51	39	21	11	7	5	2	....	....	1
$850 to $1,049	3.8	308	....	107	67	45	32	18	16	7	9	1	4	....	1	1
$1,050 to $1,249	3.9	135	....	42	34	18	14	8	12	3	3	....	....	1	....	....
$1,250 and over	3.7	192	1	53	55	33	22	9	3	9	2	2	1	....	....	2
No earnings	3.7	22	3	6	4	....	4	3	1	....	....	1	....	....	....	....
Not reported	4.9	30	1	5	3	6	4	3	2	4	1	1	....	....	....	....
Native mothers	3.5	718	3	256	202	107	52	31	24	18	10	5	3	....	....	7
Under $450	3.4	40	....	15	14	3	2	2	....	1	....	2	....	....	....	1
$450 to $549	3.4	46	....	17	13	6	4	2	....	2	....	1	....	....	....	1
$550 to $649	3.4	65	....	25	19	7	6	2	1	2	2	....	....	....	....	1
$650 to $849	3.8	179	....	51	51	29	16	12	9	4	4	1	1	....	....	1
$850 to $1,049	3.4	157	....	69	36	25	7	5	8	2	2	....	2	....	....	1
$1,050 to $1,249	3.4	81	....	32	25	9	6	1	4	2	2	....	....	....	....	....
$1,250 and over	3.4	137	1	42	41	28	10	6	2	4	....	1	....	....	....	2
No earnings	2.3	6	2	3	....	....	....	1	....	....	....	....	....	....	....	....
Not reported	3.7	7	....	2	3	....	1	....	....	1	....	....	....	....	....	....
Foreign-born mothers	4.2	1,479	2	326	325	248	239	139	96	51	28	14	4	2	2	3
Under $450	4.1	452	....	93	103	90	75	41	28	11	4	5	....	....	....	2
$450 to $549	4.2	270	....	68	59	38	44	22	22	8	6	1	....	1	1	....
$550 to $649	4.2	221	....	44	49	44	33	21	14	11	4	....	....	....	....	1
$650 to $849	4.1	237	....	56	56	36	35	27	12	7	3	4	1	....	....	....
$850 to $1,049	4.4	151	....	38	31	20	25	13	8	5	7	1	2	....	1	....
$1,050 to $1,249	4.6	54	....	10	9	9	8	7	8	1	1	....	....	1	....	....
$1,250 and over	4.5	55	....	11	14	5	12	3	1	5	2	1	1	....	....	....
No earnings	4.3	16	1	3	4	....	4	2	1	....	....	1	....	....	....	....
Not reported	5.3	23	1	3	....	6	3	3	2	3	1	1	....	....	....	....

[a] Excluding infant born during selected year.
[b] Including 1 mother, a servant, not living as a member of family.

TABLE 27.—*Births during selected year, infant deaths, infant mortality rate, and per cent of stillbirths, according to earnings of father and nativity of mother.*

Earnings of father and nativity of mother.	Total births.	Live births.	Infant deaths.	Infant mortality rate.[a]	Stillbirths.	
					Number.	Per cent of total births.[a]
All mothers	2,197	2,144	263	122.7	53	2.4
Under $450	492	477	73	153.0	15	3.0
$450 to $549	316	304	45	148.0	12	3.8
$550 to $649	286	280	40	142.9	6	2.1
$650 to $849	416	407	48	117.9	9	2.2
$850 to $1,049	308	303	26	85.8	5	1.6
$1,050 to $1,249	135	134	12	89.6	1	.7
$1,250 and over	192	190	13	68.4	2	1.0
No earnings	22	20	4	.....	2	.....
Not reported	30	29	2	.....	1	.....
Native mothers	718	705	69	97.9	13	1.8
Under $450	40	40	9	.....	.....	.....
$450 to $549	46	45	8	.....	1	.....
$550 to $649	65	64	6	.....	1	.....
$650 to $849	179	176	19	108.0	3	1.7
$850 to $1,049	157	152	11	72.4	5	3.2
$1,050 to $1,249	81	80	4	.....	1	.....
$1,250 and over	137	135	9	66.7	2	1.5
No earnings	6	6	2	.....	.....	.....
Not reported	7	7	1	.....	.....	.....
Foreign-born mothers	1,479	1,439	194	134.8	40	2.7
Under $450	452	437	64	146.5	15	3.3
$450 to $549	270	259	37	142.9	11	4.1
$550 to $649	221	216	34	157.4	5	2.3
$650 to $849	237	231	29	125.5	6	2.5
$850 to $1,049	151	151	15	99.3	.....	.....
$1,050 to $1,249	54	54	8	.....	.....	.....
$1,250 and over	55	55	4	.....	.....	.....
No earnings	16	14	2	.....	2	.....
Not reported	23	22	1	.....	1	.....

[a] Not shown where base is less than 100.

TABLE 28.—*Number and per cent distribution of births during selected year in each father's earnings group, according to source of family income.*

Source of family income.	Total births.		Earnings of father.															
			Under $550.		$550 to $649		$650 to $849		$850 to $1,049		$1,050 to $1,249		$1,250 and over.		No earnings.		Not reported.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
All sources	2,197	100.0	808	100.0	286	100.0	416	100.0	308	100.0	135	100.0	192	100.0	22	100.0	30	100.0
Derived from earnings only	1,958	89.2	762	94.3	259	90.6	379	91.1	267	86.7	116	85.9	133	69.3	17	77.3	25	83.3
Father only wage-earner	1,249	56.9	362	44.8	169	59.1	270	64.9	212	68.8	99	73.3	122	63.6	..	.....	15	50.0
Other wage-earners, total earnings	709	32.3	400	49.5	90	31.5	109	26.2	55	17.9	17	12.6	11	5.7	17	77.3	10	33.3
Under $550	240	10.9	226	27.9	...	.....	...	.....	...	.....	...	.....	...	.....	14	63.7	..	.....
$550 to $649	108	4.9	94	11.6	14	4.9	...	.....	...	.....	...	.....	...	.....	..	.....	..	.....
$650 to $849	139	6.4	49	6.1	55	19.3	34	8.2	...	.....	...	.....	...	.....	1	4.5	..	.....
$850 to $1,049	77	3.5	8	1.0	13	4.5	45	10.7	11	3.6	...	.....	...	.....	..	.....	..	.....
$1,050 to $1,249	61	2.8	8	1.0	4	1.4	14	3.4	27	8.8	8	5.9	...	.....	..	.....	..	.....
$1,250 and over	59	2.7	3	.4	4	1.4	14	3.4	17	5.5	9	6.7	11	5.7	..	.....	1	3.3
Not reported	25	1.1	12	1.5	...	.....	2	.5	...	.....	...	.....	...	.....	2	9.1	9	30.0
Earnings supplemented by other income	235	10.7	46	5.7	27	9.4	37	8.9	41	13.3	19	14.1	59	30.7	3	13.6	3	10.0
No source	2	(a)	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	2	9.1	..	.....
Not reported	2	(a)	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	..	.....	2	6.7

a Less than one-tenth of 1 per cent.

TABLE 29.—*Births during selected year, infant deaths, infant mortality rate, and per cent of stillbirths, according to nationality of mother and her employment at home or away from home during year before birth of infant.*

Employment of mother during year before birth of infant and nationality of mother.	Total births.	Live births.	Infant deaths.	Infant mortality rate.[a]	Stillbirths.	
					Number.	Per cent of total births.[a]
All mothers	2,197	2,144	263	122.7	53	2.4
Not gainfully employed	1,480	1,448	160	110.5	32	2.2
Gainfully employed	716	695	103	148.2	21	2.9
At home	558	542	71	131.0	16	2.9
Away from home	158	153	32	209.2	5	3.2
Not reported	1	1	.....	.....	.....	.....
Native mothers	718	705	69	97.9	13	1.8
Not gainfully employed	594	583	54	92.6	11	1.9
Gainfully employed	123	121	15	124.0	2	1.6
At home	71	70	7	.....	1	.....
Away from home	52	51	8	.....	1	.....
Not reported	1	1	.....	.....	.....	.....
Foreign-born mothers	1,479	1,439	194	134.8	40	2.7
Not gainfully employed	886	865	106	122.5	21	2.4
Gainfully employed	593	574	88	153.3	19	3.2
At home	487	472	64	135.6	15	3.1
Away from home	106	102	24	235.3	4	3.8
Italian mothers	651	628	69	109.9	23	3.5
Not gainfully employed	408	397	45	113.4	11	2.7
Gainfully employed	243	231	24	103.9	12	4.9
At home	215	203	20	98.5	12	5.6
Away from home	28	28	4	.....	.....	.....
Lithuanian mothers	267	260	54	207.7	7	2.6
Not gainfully employed	73	72	16	.....	1	.....
Gainfully employed	194	188	38	202.1	6	3.1
At home	159	156	30	192.3	3	1.9
Away from home	35	32	8	.....	3	.....
Irish mothers	200	195	36	184.6	5	2.5
Not gainfully employed	149	145	25	172.4	4	2.7
Gainfully employed	51	50	11	.....	1	.....
At home	36	36	[illegible]	.....	.....	.....
Away from home	15	14	5	.....	1	.....
Other foreign-born mothers	361	356	35	98.3	5	1.4
Not gainfully employed	256	251	20	79.7	5	2.0
Gainfully employed	105	105	15	142.9	.....	.....
At home	77	77	8	.....	.....	.....
Away from home	28	28	7	.....	.....	.....

[a] Not shown where base is less than 100.

TABLE 30.—*Live births during selected year, infant deaths, and infant mortality rate, according to working status of mother during year following birth of infant and infant's age when mother resumed gainful work away from home.*

Working status of mother during year following birth of infant.	Live births.	Survived one year.	Infant deaths.	Infant mortality rate.[a]
All mothers	2,144	1,881	263	122.7
No gainful work	1,478	1,313	165	111.6
Gainful work	666	568	98	147.1
Resumed after infant's death	42	.....	42	.....
Resumed during infant's life	623	568	55	88.3
Time of resumption not reported	1	.....	1	.....
Work in home	593	521	72	121.4
Resumed after infant's death	19	.....	19	.....
Resumed during infant's life	573	521	52	90.8
Time of resumption not reported	1	.....	1	.....
Work out of home	73	47	26	.....
Resumed after infant's death	23	.....	23	.....
Resumed during infant's life	50	47	3	.....
Infant's age at time of resumption:				
Less than 1 month	3	2	1	.....
1 month but less than 2	2	2	.....	.....
2 months but less than 3	6	6	.....	.....
3 months but less than 4	7	6	1	.....
4 months but less than 5	5	5	.....	.....
5 months but less than 6	5	4	1	.....
6 months or older	22	22	.....	.....

[a] Not shown where base is less than 100.

TABLE 31.—*Live births during selected year, infant deaths, and infant mortality rate, according to occupation of mother during year following birth of infant.*

Occupation of mother during year following birth of infant.	Live births.	Infant deaths.	Infant mortality rate.[a]
All mothers	2,144	263	122.7
Not gainfully employed	1,478	165	111.6
Gainfully employed	666	98	147.1
At home	593	72	121.4
Keeping lodgers	544	64	117.6
Home work from factory	1	.....	.....
Other home work	48	8	.....
Away from home	73	26	.....
Servants	7	2	.....
Laundry operatives	3	1	.....
Others in domestic and personal service	14	5	.....
Factory operatives	40	15	.....
Textile	5	3	.....
Metal	35	12	.....
Other occupations	9	3	.....

[a] Not shown where base is less than 100.

Table 32.—*Births during selected year in households of specified number of members, according to number of lodgers in family and nationality of mother.*

Number of lodgers in family and nationality of mother.	Births during selected year.												
	Total.	In households of specified number of members.											
		2	3	4	5	6	7	8	9	10	11	12 and over.	Not reported.
All mothers	2,197	280	362	372	342	281	208	140	107	50	26	23	6
No lodgers kept	1,659	280	324	292	254	186	119	86	63	26	11	15	3
Lodgers kept	535	.....	38	80	88	95	89	54	44	24	15	8	.....
1 lodger	178	.....	38	47	35	29	10	10	2	5	2	.....	.....
2 lodgers	164	.....	.....	33	37	32	36	10	9	6	1	.....	.....
3 lodgers	79	.....	.....	.....	16	21	13	14	8	5	1	1	.....
4 lodgers	65	.....	.....	.....	.....	13	20	10	15	2	5	.....	.....
5 lodgers	23	.....	.....	.....	.....	.....	10	3	4	4	1	1	.....
6 lodgers	17	.....	.....	.....	.....	.....	.....	7	5	2	1	2	.....
7 lodgers	4	.....	.....	.....	.....	.....	.....	.....	1	.....	2	1	.....
8 lodgers	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....
9 lodgers	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
10 lodgers	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....
Not reported	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
Native mothers	418	152	165	144	91	55	34	31	26	7	5	4	4
No lodgers kept	660	152	155	124	80	48	32	28	22	7	5	4	3
Lodgers kept	57	.....	10	20	11	7	2	3	4	.....	.....	.....	.....
1 lodger	44	.....	10	18	7	4	2	2	1	.....	.....	.....	.....
2 lodgers	10	.....	.....	2	4	3	.....	.....	1	.....	.....	.....	.....
3 lodgers	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
4 lodgers	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
6 lodgers	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Not reported	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Foreign-born mothers	1,479	128	197	228	251	226	174	109	81	43	21	19	2
No lodgers kept	999	128	169	168	174	138	87	58	41	19	6	11	.....
Lodgers kept	478	.....	28	60	77	88	87	51	40	24	15	8	.....
1 lodger	134	.....	28	29	28	25	8	8	1	5	2	.....	.....
2 lodgers	154	.....	.....	31	33	29	36	10	8	6	1	.....	.....
3 lodgers	78	.....	.....	.....	16	21	13	14	7	5	1	1	.....
4 lodgers	64	.....	.....	.....	.....	13	20	9	15	2	5	.....	.....
5 lodgers	23	.....	.....	.....	.....	.....	10	3	4	4	1	1	.....
6 lodgers	16	.....	.....	.....	.....	.....	.....	7	4	2	1	2	.....
7 lodgers	4	.....	.....	.....	.....	.....	.....	.....	1	.....	2	1	.....
8 lodgers	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....
9 lodgers	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
10 lodgers	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....
Not reported	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
Italian mothers	651	49	76	92	104	104	80	52	42	28	11	12	1
No lodgers kept	455	49	69	78	76	64	44	28	24	13	3	7	.....
Lodgers kept	195	.....	7	14	28	40	36	24	18	15	8	5	.....
1 lodger	54	.....	7	5	13	13	4	5	1	4	2	.....	.....
2 lodgers	59	.....	.....	9	10	14	17	2	3	3	1	.....	.....
3 lodgers	40	.....	.....	.....	5	8	7	10	5	4	1	.....	.....
4 lodgers	20	.....	.....	.....	.....	5	4	3	5	1	2	.....	.....
5 lodgers	11	.....	.....	.....	.....	.....	4	2	2	2	.....	1	.....
6 lodgers	5	.....	.....	.....	.....	.....	.....	2	1	1	.....	1	.....
7 lodgers	3	.....	.....	.....	.....	.....	.....	.....	1	.....	1	1	.....
8 lodgers	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....
10 lodgers	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Not reported	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Lithuanian mothers	267	13	21	39	47	43	46	26	18	6	5	3	.....
No lodgers kept	90	13	14	11	18	13	8	6	4	1	.....	2	.....
Lodgers kept	177	.....	7	28	29	30	38	20	14	5	5	1	.....
1 lodger	30	.....	7	13	5	4	.....	1	.....	.....	.....	.....	.....
2 lodgers	65	.....	.....	15	15	9	16	6	3	1	.....	.....	.....
3 lodgers	27	.....	.....	.....	9	9	5	3	1	.....	.....	.....	.....
4 lodgers	35	.....	.....	.....	.....	8	11	4	8	1	3	.....	.....
5 lodgers	9	.....	.....	.....	.....	.....	6	1	.....	2	.....	.....	.....
6 lodgers	10	.....	.....	.....	.....	.....	.....	5	2	1	1	1	.....
7 lodgers	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....

TABLE 32.—*Births during selected year in households of specified numbers of members, according to number of lodgers in family and nationality of mother*—Continued.

Number of lodgers in family and nationality of mother.	Births during selected year.												
	Total.	In households of specified number of members.											
		2	3	4	5	6	7	8	9	10	11	12 and over.	Not reported.
Foreign-born mothers—Continued.													
Irish mothers	200	13	40	33	45	25	19	13	6	1	1	4	.....
No lodgers kept	168	13	34	27	38	21	14	12	6	....	1	2	.....
Lodgers kept	32	.....	6	6	7	4	5	1	.....	1	....	2	.....
1 lodger	20	.....	6	4	5	3	2	.....	.....	....	....	.....	.....
2 lodgers	7	.....	.....	2	2	1	1	1	.....	....	....	.....	.....
3 lodgers	2	.....	.....	.....	.....	.....	.....	.....	.....	1	....	1	.....
4 lodgers	2	.....	.....	.....	.....	.....	2	.....	.....	....	....	.....	.....
10 lodgers	1	.....	.....	.....	.....	.....	.....	.....	.....	....	....	1	.....
Other foreign-born mothers	361	53	60	64	55	54	29	18	15	8	4	.....	1
No lodgers kept	286	53	52	52	42	40	21	12	7	5	2	.....	.....
Lodgers kept	74	.....	8	12	13	14	8	6	8	3	2	.....	.....
1 lodger	30	.....	8	7	5	5	2	2	.....	1	....	.....	.....
2 lodgers	23	.....	.....	5	6	5	2	1	2	2	....	.....	.....
3 lodgers	9	.....	.....	.....	2	4	1	1	1	....	....	.....	.....
4 lodgers	7	.....	.....	.....	.....	.....	3	2	2	....	....	.....	.....
5 lodgers	3	.....	.....	.....	.....	.....	.....	.....	2	....	1	.....	.....
6 lodgers	1	.....	.....	.....	.....	.....	.....	.....	1	....	....	.....	.....
9 lodgers	1	.....	.....	.....	.....	.....	.....	.....	.....	....	1	.....	.....
Not reported	1	.....	.....	.....	.....	.....	.....	.....	.....	....	....	.....	1

Table 33.—*Births during selected year in families of specified number of persons, according to total family earnings and nationality of mother.*

Total family earnings and nationality of mother.	Births during selected year in—										
	All families.	Families of specified number[a] of persons.									
		1	2	3	4	5	6	7	8	9 or more.	Not reported.[b]
All mothers	2,197	5	582	527	355	291	170	120	69	68	10
Under $550	639	3	153	153	115	95	58	37	15	6	4
$550 to $649	301	....	70	73	53	50	22	13	12	8	.....
$650 to $849	446	....	127	106	65	60	37	27	11	10	3
$850 to $1,049	331	....	109	83	50	34	22	17	5	11	.....
$1,050 to $1,249	182	....	54	44	23	20	9	14	7	11	.....
$1,250 and over	247	1	59	60	41	25	17	9	14	18	3
No earnings and not reported	51	1	10	8	8	7	5	3	5	4	.....
Native mothers	718	3	256	202	107	52	31	24	18	18	7
Under $550	69	2	28	21	7	5	2	.....	1	1	2
$550 to $649	58	....	21	18	7	7	2	.....	2	1	.....
$650 to $849	164	....	54	47	25	13	12	8	1	2	2
$850 to $1,049	156	....	68	39	27	7	4	7	2	2	.....
$1,050 to $1,249	99	....	36	29	10	8	1	4	5	6	.....
$1,250 and over	160	1	44	44	31	11	10	5	6	5	3
Not reported	12	....	5	4	.....	1	.....	.....	1	1	.....
Foreign-born mothers	1,479	2	326	325	248	239	139	96	51	50	3
Under $550	570	1	125	132	108	90	56	37	14	5	2
$550 to $649	243	....	49	55	46	43	20	13	10	7	.....
$650 to $849	282	....	73	59	40	47	25	19	10	8	1
$850 to $1,049	175	....	41	44	23	27	18	10	3	9	.....
$1,050 to $1,249	83	....	18	15	13	12	8	10	2	5	.....
$1,250 and over	87	....	15	16	10	14	7	4	8	13	.....
No earnings and not reported	39	1	5	4	8	6	5	3	4	3	.....
Italian mothers	651	1	128	127	114	109	67	47	26	29	3
Under $550	339	1	70	74	66	53	36	22	11	4	2
$550 to $649	112	....	21	23	18	19	9	9	7	6	.....
$650 to $849	102	....	21	14	17	19	10	9	5	6	1
$850 to $1,049	47	....	8	10	6	9	6	3	1	4	.....
$1,050 to $1,249	16	....	5	2	2	1	2	1	.....	3	.....
$1,250 and over	20	....	1	4	1	4	2	2	.....	6	.....
No earnings and not reported	15	....	2	.....	4	4	2	1	2	.....	.....
Lithuanian mothers	267	....	80	65	42	47	12	14	4	3	.....
Under $550	116	....	27	33	18	23	7	6	1	1	.....
$550 to $649	54	....	17	11	12	9	3	2	.....	.....	.....
$650 to $849	46	....	23	11	4	5	.....	2	.....	1	.....
$850 to $1,049	21	....	7	5	4	4	.....	1	.....	.....	.....
$1,050 to $1,249	10	....	1	2	2	2	.....	2	.....	1	.....
$1,250 and over	12	....	4	1	1	2	2	.....	2	.....	.....
Not reported	8	....	1	2	1	2	.....	1	1	.....	.....
Irish mothers	200	....	21	50	34	39	23	13	11	9	.....
Under $550	45	....	3	10	12	6	7	5	2	.....	.....
$550 to $649	30	....	2	6	8	8	2	1	2	1	.....
$650 to $849	49	....	5	14	6	12	6	3	3	.....	.....
$850 to $1,049	39	....	8	13	4	5	3	2	1	3	.....
$1,050 to $1,249	18	....	1	4	1	4	5	2	.....	1	.....
$1,250 and over	16	....	2	3	2	4	.....	.....	2	3	.....
Not reported	3	....	.....	.....	1	.....	.....	.....	1	1	.....
Other foreign-born mothers	361	1	97	83	58	44	37	22	10	9	.....
Under $550	70	....	25	15	12	8	6	4	.....	.....	.....
$550 to $649	47	....	9	15	8	7	6	1	1	.....	.....
$650 to $849	85	....	24	20	13	11	9	5	2	1	.....
$850 to $1,049	68	....	18	16	9	9	9	4	1	2	.....
$1,050 to $1,249	39	....	11	7	8	5	1	5	2	.....	.....
$1,250 and over	39	....	8	8	6	4	3	2	4	4	.....
No earnings and not reported	13	1	2	2	2	.....	3	1	.....	2	.....

[a] Excluding infant born during selected year.
[b] Including 1 mother, a servant, not living as a member of family.

TABLE 34.—*Mothers reporting specified number of births resulting from all pregnancies, by nationality of mother.*

Nationality of mother.	Number of mothers.																
	Total.	Reporting specified number of births, all pregnancies.[a]															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	18
All mothers	2,155	489	428	335	270	206	132	100	76	47	38	14	14	3	1	1	1
Native mothers	704	223	179	112	65	38	31	15	18	11	8	2	2	....	....	....	....
Foreign-born mothers	1,451	266	249	223	205	168	101	85	58	36	30	12	12	3	1	1	1
Italian	634	101	88	106	89	75	50	41	34	20	16	6	6	2	....	....	....
Lithuanian	263	67	49	32	37	26	16	13	7	4	5	2	2	1	....	1	1
Irish	197	19	39	31	37	24	12	14	7	8	3	1	1	....	1	....	....
Slavic[b]	91	21	17	13	17	12	3	4	2	1	1	....	....	....	....	....	....
Jewish	59	11	10	16	6	10	4	1	1	....	....	....	....	....	....	....	....
German	57	9	22	8	6	2	2	5	....	1	....	....	2	....	....	....	....
French Canadian	55	9	9	5	4	8	7	3	3	....	4	2	1	....	....	....	....
English, Scotch, and Welsh[c]	40	15	5	7	3	6	1	2	....	....	....	1	....	....	....	....	....
All other[d]	55	14	10	5	6	5	6	2	4	2	1	....	....	....	....	....	....

[a] Excluding miscarriages.
[b] Including 65 Polish, 20 Russian, 2 Slovak, 2 Bohemian, 1 Serbo-Croatian, and 1 Ruthenian.
[c] Including 18 English, 21 Scotch, and 1 Welsh.
[d] Including 24 Swedish, 7 English Canadian, 6 French, 5 Magyar, 3 Danish, 3 Syrian, 2 Greek, 2 Norwegian, 1 Dutch, 1 Spanish, and 1 West Indian Black.

TABLE 35.—*Births during selected year to foreign-born mothers resident in United States specified number of years, according to nationality of mother.*

Nationality of mother.	Births during selected year to foreign-born mothers.							
	Total.	Resident in United States specified number of years.						
		Under 3.	3 to 5	6 to 8	9 to 11	12 to 14	15 and over.	Not reported.
All foreign-born mothers	1,479	195	272	303	245	166	288	10
Italian	651	114	137	137	108	65	86	4
Lithuanian	267	34	75	70	47	20	19	2
Irish	200	2	12	22	37	43	82	2
Slavic[a]	91	21	16	26	17	5	6	.....
Jewish	61	8	12	15	8	4	14	.....
German	58	4	10	11	6	8	18	1
French Canadian	56	.....	3	4	6	8	35	.....
English, Scotch, and Welsh[b]	40	8	2	9	5	1	15	.....
All other[c]	55	4	5	9	11	12	13	1

[a] Including 65 Polish, 20 Russian, 2 Slovak, 2 Bohemian, 1 Serbo-Croatian, and 1 Ruthenian.
[b] Including 18 English, 21 Scotch, and 1 Welsh.
[c] Including 29 Scandinavian, 7 English Canadian, 6 French, 5 Magyar, 3 Syrian, 2 Greek, 1 Dutch, 1 Spanish, and 1 West Indian Black.

TABLE 36.—*Births during selected year, infant deaths, infant mortality rate, and per cent of stillbirths, according to number of tenements in dwelling.*

Tenements in dwelling.	Total births.	Live births.	Infant deaths.	Infant mortality rate.[a]	Stillbirths.	
					Number.	Per cent of total births.[a]
All dwellings	2,197	2,144	263	122.7	53	2.4
Tenements in dwelling:						
1	220	216	19	88.0	4	1.8
2	478	466	47	100.9	12	2.5
3	667	650	67	103.1	17	2.5
4	176	172	30	174.4	4	2.3
5	64	63	11		1	
6	303	296	44	148.6	7	2.3
7	27	27	4			
8	73	73	10			
9	35	33	6		2	
10	10	9	1		1	
11	8	8	1			
12	75	70	11		5	
13	7	7	3			
14	9	9	1			
15	7	7	4			
16	15	15	3			
17	2	2				
18	14	14				
20	1	1	1			
26	1	1				
Not reported	5	5				

[a] Not shown where base is less than 100.

TABLE 37.—*Births during selected year, infant deaths, infant mortality rate, and per cent of stillbirths, according to average number of persons per room.*

Persons[a] per room.	Total births.	Live births.	Infant deaths.	Infant mortality rate.[b]	Stillbirths.	
					Number.	Per cent of total births.[b]
Total	2,197	2,144	263	122.7	53	2.4
Less than 1	827	812	82	101.0	15	1.8
1 but less than 2	1,150	1,118	153	136.9	32	2.8
2 but less than 3	206	201	26	129.4	5	2.4
3 but less than 4	3	3	1			
Not reported	11	10	1		1	

[a] Excluding infant born during selected year. [b] Not shown where base is less than 100.

Table 38.—*Births during selected year in dwellings of specified number of rooms, according to number of persons to dwelling and nativity of mother.*

Persons[a] to dwelling and nativity of mother	Births during selected year.													
	Total.	In dwellings of specified number of rooms.												
		2	3	4	5	6	7	8	9	10	11	12	16	Not reported.
All mothers	2,197	25	298	796	681	236	64	48	21	11	2	5	2	8
Persons to dwelling:														
2	280	11	49	97	95	26	1	....	1	....	....	....	....	....
3	362	5	63	136	106	30	11	5	3	2	....	....	....	1
4	372	5	69	117	120	39	9	5	4	1	1	....	1	1
5	342	3	63	130	91	25	9	11	3	4	1	1	....	1
6	281	....	27	119	87	29	12	6	....	....	....	1	....	....
7	208	1	18	85	66	25	7	3	2	....	....	....	....	1
8	140	....	8	55	38	27	4	3	3	2	....	....	....	....
9	107	....	1	32	47	14	5	4	2	1	....	....	....	1
10	50	....	....	12	16	11	3	6	1	....	....	....	1	....
11	26	....	....	10	8	5	1	1	....	1	....	....	....	....
12 or more	23	....	....	1	6	5	2	4	2	....	....	3	....	....
Not reported	6	....	....	2	1	....	....	....	....	....	....	....	....	3
Native mothers	718	4	36	164	290	125	39	28	15	8	1	4	1	3
Persons to dwelling:														
2	152	4	14	47	64	21	1	....	1	....	....	....	....	....
3	165	....	7	48	70	23	9	4	3	1	....	....	....	....
4	144	....	8	27	64	29	7	5	3	1	....	....	....	....
5	91	....	4	15	37	13	6	7	3	4	1	1	....	....
6	55	....	2	12	18	12	5	5	....	....	....	1	....	....
7	34	....	....	3	14	10	4	2	1	....	....	....	....	....
8	31	....	1	4	7	12	4	2	1	....	....	....	....	....
9	26	....	....	5	12	3	3	....	2	1	....	....	....	....
10	7	....	....	1	3	....	....	1	1	....	....	....	1	....
11	5	....	....	2	....	2	....	....	....	1	....	....	....	....
12 or more	4	....	....	....	....	....	....	2	....	....	....	2	....	....
Not reported	4	....	....	....	1	....	....	....	....	....	....	....	....	3
Foreign-born mothers	1,479	21	262	632	391	111	25	20	6	3	1	1	1	5
Persons to dwelling:														
2	128	7	35	50	31	5	....	....	....	....	....	....	....	....
3	197	5	56	88	36	7	2	1	....	1	....	....	....	1
4	228	5	61	90	56	10	2	....	1	....	1	....	1	1
5	251	3	59	115	54	12	3	4	....	....	....	....	....	1
6	226	....	25	107	69	17	7	1	....	....	....	....	....	....
7	174	1	18	82	52	15	3	1	1	....	....	....	....	1
8	109	....	7	51	31	15	....	1	2	2	....	....	....	....
9	81	....	1	27	35	11	2	4	....	....	....	....	....	1
10	43	....	....	11	13	11	3	5	....	....	....	....	....	....
11	21	....	....	8	8	3	1	1	....	....	....	....	....	....
12 or more	19	....	....	1	6	5	2	2	2	....	....	1	....	....
Not reported	2	....	....	2	....	....	....	....	....	....	....	....	....	....

[a] Excluding infant born during selected year.

TABLE 39.—*Births during selected year in each ward of residence, according to sanitary condition of dwelling.*

Sanitary condition of dwelling.	Total. births.	Ward of residence.				
		1	2	3	4	5
Total dwellings[a]	2,197	460	336	493	585	323
Water supply:						
City	2,032	439	289	445	565	294
Spring	37	.....	23	2	8	4
Well or cistern	123	19	24	46	11	23
Not reported	5	2	.....	.....	1	2
Type of toilet:						
Water-closet	1,962	434	286	436	527	279
Privy	232	25	50	56	58	43
No toilet	1	.....	.....	1	.....	.....
Not reported	2	1	.....	.....	.....	1
Location of toilet:						
In dwelling	1,574	404	258	374	357	181
Not in dwelling	619	55	78	118	227	141
No toilet	1	.....	.....	1	.....	.....
Not reported	3	1	.....	.....	1	1
Sewer connection:						
Sink connected	1,884	406	276	404	530	268
Sink not connected	309	52	59	89	55	54
Not reported	4	2	1	.....	.....	1
Toilet connected	1,854	404	273	397	518	262
Toilet not connected	338	54	62	95	67	60
Not reported	5	2	1	1	.....	1

[a] Dwelling means place in which family lived during greater part of year following birth of infant, or, in case of stillborn child, where mother spent the greater part of her pregnancy period.

TABLE 40.—*Births during selected year, infant deaths, infant mortality rate, and per cent of stillbirths, according to tenure and rental of home and nativity of mother.*

Tenure and rental of home and nativity of mother.	Total births.	Live births.	Infant deaths.	Infant mortality rate.[a]	Stillbirths.	
					Number.	Per cent of total births.[a]
All mothers	2,197	2,144	263	122.7	53	2.4
Home owned	265	262	24	91.6	3	1.1
By infant's family	221	218	22	100.9	3	1.4
By other family in infant's household	44	44	2			
Home not owned	1,924	1,875	237	126.4	49	2.5
Monthly rental:						
Under $5	2	2				
$5 but less than $10	440	428	75	175.2	12	2.7
$10 but less than $15	972	947	115	121.4	25	2.6
$15 but less than $20	359	348	34	97.7	11	3.1
$20 but less than $25	58	58	5			
$25 but less than $35	45	44	2		1	
$35 but less than $50	14	14				
$50 or over	1	1				
Free	2	2	1			
Not reported	31	31	5			
Boarding	6	5	2		1	
Not reported	2	2				
Native mothers	718	705	69	97.9	13	1.8
Home owned	108	107	8	74.8	1	.9
By infant's family	79	78	6		1	
By other family in infant's household	29	29	2			
Home not owned	608	596	61	102.3	12	2.0
Monthly rental:						
$5 but less than $10	68	67	9		1	
$10 but less than $15	231	228	24	105.3	3	1.3
$15 but less than $20	209	202	19	94.1	7	3.3
$20 but less than $25	35	35	4			
$25 but less than $35	37	36	1		1	
$35 but less than $50	10	10				
$50 or over	1	1				
Free	1	1				
Not reported	16	16	4			
Not reported	2	2				
Foreign-born mothers	1,479	1,439	194	134.8	40	2.7
Home owned	157	155	16	103.2	2	1.3
By infant's family	142	140	16	114.3	2	1.4
By other family in infant's household	15	15				
Home not owned	1,316	1,279	176	137.6	37	2.8
Monthly rental:						
Under $5	2	2				
$5 but less than $10	372	361	66	182.8	11	3.0
$10 but less than $15	741	719	91	126.6	22	3.0
$15 but less than $20	150	146	15	102.7	4	2.7
$20 but less than $25	23	23	1			
$25 but less than $35	8	8	1			
$35 but less than $50	4	4				
Free	1	1	1			
Not reported	15	15	1			
Boarding	6	5	2		1	

[a] Not shown where base is less than 100.

TABLE 41.—*Buildings in selected districts, by number of apartments in building.*

Apartments in building.	Buildings in—						
	All districts.	District.					
		I	II	III	IV	V	VI
All classes	211	24	56	31	62	35	3
Apartments:							
1	38	5	12	8	8	5	.....
2	67	9	26	9	13	9	1
3	29	7	9	2	9	2	.....
4	20	1	5	3	7	4	.....
5	11	.....	2	2	7	.....	.....
6	22	2	2	4	6	[a] 8	.....
8 or over	24	.....	.....	3	12	7	2

[a] Including one building in which three apartments were used as one. In other tables this has been entered as a single household.

TABLE 42.—*Apartments in selected districts, by number of rooms in apartment.*

Rooms in apartment.	Apartments in—						
	All districts.	District.					
		I	II	III	IV	V	VI
All classes	811	60	133	111	304	177	26
Rooms in apartment:							
1	1	.....	.....	1	.....	.....	.....
2	30	1	16	.....	9	4	.....
3	153	3	20	32	52	36	10
4	276	18	58	23	94	81	2
5	164	13	18	33	72	28	.....
6	69	8	5	12	40	4	.....
7	28	3	6	3	8	2	6
8	14	2	2	2	3	4	1
9 or over	7	1	1	1	3	[a] 1	.....
Not reported	1	.....	.....	.....	1	.....	.....
Vacant	68	11	7	4	22	17	7

[a] Three apartments combined and used as one.

TABLE 43.—*Households in selected districts, according to nationality and color of head of household.*

Nationality and color of head of household.	Households in—						
	All districts.	District.					
		I	II	III	IV	V	VI
All nationalities	743	49	126	107	282	160	19
Native	33	7	7	10	3	2	4
White	27	3	7	10	3	.....	4
Black	6	4	.....	.....	.....	2	.....
Foreign-born	709	42	119	97	278	158	15
Italian	408	32	36	36	148	156	.....
Lithuanian	165	.....	46	4	115	.....	.....
Irish	50	7	33	1	7	1	1
Polish	26	.....	2	17	.....	.....	7
Jewish	35	.....	.....	32	2	1	.....
All other [a]	25	3	2	7	6	.....	7
Not reported	1	.....	.....	.....	1	.....	.....

[a] Including 11 French Canadian, 5 Russian, 5 German, 3 English, and 1 Swedish.

TABLE 44.—*Persons in selected districts, according to family status.*

Family status.	Persons in—						
	All districts.	District.					
		I	II	III	IV	V	VI
All classes	5,043	351	765	632	1,917	1,268	110
Adults (in family)	2,060	128	388	294	773	427	50
Adults (lodgers)	1,478	133	126	128	592	484	15
Children	1,475	90	251	210	522	357	45
Status not reported	30	.....	.....	.....	30	.....	.....

TABLE 45.—*Total monthly minimum and maximum rental and average per room and per apartment, by number of rooms in apartment—selected districts.*[a]

Rooms per apartment.	Number of apartments.	Monthly rental.			
		Minimum.	Maximum.	Average per—	
				Room.	Apartment.
1	1	$4.00	$4.00	$4.00	$4.00
2	24	3.00	8.00	2.85	5.70
3	141	4.00	14.00	3.01	9.05
4	259	6.00	16.00	2.76	11.05
5	149	7.00	20.00	2.70	13.50
6	59	8.00	32.00	2.62	15.72
7	17	10.00	17.00	1.85	12.97
8	10	10.00	20.00	1.88	15.00
9	3	14.00	18.00	1.80	16.16
11	1	[b] 26.00	[b] 26.00	.....	.....

[a] Excluding 3 cases of free rent, 54 of owned property, and 90 for which there was no report.
[b] Combined rental for 3 apartments used as one.

TABLE 46.—*Measured sleeping rooms in selected districts occupied by specified numbers of children or adults, according to actual cubic contents and fulfillment of legal minimum requirements.*[a]

Cubic contents of room.	Total measured sleeping rooms.	Sleeping rooms occupied by—																	
		1 child.	1 adult.	2 children.	1 adult, 1 child.	3 children.	2 adults.	1 adult, 2 children.	4 children.	2 adults, 1 child.	1 adult, 3 children.	3 adults.	5 children.	2 adults, 2 children.	1 adult, 4 children.	3 adults, 1 child.	2 adults, 3 children.	1 adult, 5 children.	4 adults.
Legally required cubic contents.....feet..	.....	300	500	600	800	900	1,000	1,100	1,200	1,300	1,400	1,500	1,500	1,600	1,700	1,800	1,900	2,000	2,000
All classes.....	1,210	8	46	23	61	31	318	49	10	199	29	103	8	129	4	18	50	1	69
Cubic feet:																			
Less than 300.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
300 to 499.....	23	1	8	2	2	.....	7	2	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
500 to 599.....	50	1	16	3	6	1	14	.....	.....	4	1	1	.....	1	.....	.....	1	.....	.....
600 to 799.....	232	4	13	12	25	9	81	15	1	36	5	9	3	14	1	1	2	.....	1
800 to 899.....	161	2	2	2	7	10	65	8	.....	24	2	15	.....	9	.....	.....	9	.....	3
900 to 999.....	155	.....	1	1	11	4	51	5	1	35	3	11	3	12	.....	2	5	.....	4
1,000 to 1,099.....	164	.....	2	.....	4	2	49	6	2	32	3	17	.....	23	1	1	11	.....	7
1,100 to 1,199.....	158	.....	2	2	4	2	28	8	2	29	4	16	.....	27	1	2	6	1	16
1,200 to 1,299.....	84	.....	1	1	.....	2	14	1	2	14	3	9	.....	12	1	3	6	.....	9
1,300 to 1,399.....	66	.....	.....	.....	2	.....	6	2	.....	8	4	8	1	7	.....	2	4	.....	10
1,400 to 1,499.....	44	.....	.....	.....	.....	1	1	2	.....	9	1	10	.....	8	.....	3	3	.....	3
1,500 to 1,599.....	30	.....	.....	.....	.....	.....	2	.....	1	5	.....	3	.....	8	.....	1	.....	.....	5
1,600 to 1,699.....	20	.....	.....	.....	.....	.....	.....	.....	1	2	2	3	1	5	.....	1	.....	.....	3
1,700 to 1,799.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	2	.....	2
1,800 to 1,899.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	4
1,900 to 1,999.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	2
2,000 to 2,099.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
2,200 to 2,299.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....
2,600 to 2,699.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

[a] Rooms to left of black line in distribution table fulfill legal minimum requirements of cubic contents for occupants specified.

TABLE 46.—*Measured sleeping rooms in selected districts occupied by specified numbers of children or adults, according to actual cubic contents and fulfillment of legal minimum requirements*[a]—Continued.

Cubic contents of room.	Sleeping rooms occupied by—												
	3 adults, 2 children.	2 adults, 4 children.	4 adults, 1 child.	3 adults, 3 children.	2 adults, 5 children.	5 adults.	4 adults, 2 children.	3 adults, 4 children.	5 adults, 1 child.	2 adults, 6 children.	6 adults.	3 adults, 5 children.	7 adults.
Legally required cubic contents ..... feet	2,100	2,200	2,300	2,400	2,500	2,500	2,600	2,700	2,800	2,800	3,000	3,000	3,500
All classes	13	9	6	1	1	11	1	2	1	1	6	1	1
Cubic feet:													
Less than 300													
300 to 499													
500 to 599	1												
600 to 799													
800 to 899	1	1			1								
900 to 999	3	1	1			1							
1,000 to 1,099		2	1			1							
1,100 to 1,199	3	2				1				1		1	
1,200 to 1,299		1	2						1		2		
1,300 to 1,399	2	2	1			4	1	1			1		
1,400 to 1,499	1					2							
1,500 to 1,599	1			1		2					1		
1,600 to 1,699			1								1		
1,700 to 1,799													1
1,800 to 1,899													
1,900 to 1,999													
2,000 to 2,099													
2,200 to 2,299								1			1		
2,600 to 2,699	1												

[a] Rooms to left of black line in distribution table fulfill legal minimum requirements of cubic contents for occupants specified.

TABLE 47.—*Persons and toilets in selected districts, according to specified number of persons per toilet and type and location of toilet.*

Type and location of toilet.	Total.		Number of persons per toilet.													
			Less than 5.		5 to 9		10 to 14		15 to 19		20 to 24		25 and more.		Not reported.	
	Toilets.	Persons.	Toilets.	Persons.	Toilets.	Persons.	Toilets.	Persons.	Toilets.	Persons.	Toilets.	Persons.	Toilets.	Persons.	Toilets.	Persons.
All toilets	620	5,043	97	304	355	2,496	117	1,350	28	454	10	216	8	216	5	7
Privies	45	476	7	23	16	115	11	133	8	130	2	43	1	32	.....	.....
Water-closets	575	4,567	90	281	339	2,381	106	1,217	20	324	8	173	7	184	5	7
Location:																
In apartment	390	2,730	71	231	254	1,771	57	634	6	94	.....	.....	.....	.....	2	.....
In hall	125	1,278	11	28	55	399	38	447	9	146	8	173	3	83	1	2
In cellar	30	218	5	12	19	126	4	49	2	31	.....	.....	.....	.....	.....	.....
On porch	18	194	1	2	7	52	7	87	3	53	.....	.....	.....	.....	.....	.....
In yard	12	147	2	8	4	33	.....	.....	.....	.....	.....	.....	4	101	2	5